

Mr. Mahunoud Moheb

MATHEMATICS

PRIMARY FOUR
SECOND TERM

2026



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UNIT

9

Theme 3 | Fractions, Decimals, and Proportional Relationships

Unit 9 Fractions



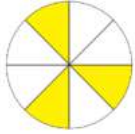


Concept (1)

Composing and Decomposing Fractions

Lesson (1)

Unit Fractions



$$\frac{3}{8}$$

➡ **Numerator** (number of shaded parts)

➡ **Denominator** (number of all parts)



The figure	All parts	Shaded parts	Fraction form	Word form
	2	1	$\frac{1}{2}$	One half
	3	1	$\frac{1}{3}$	One third
	4	1	$\frac{1}{4}$	One fourth
	5	1	$\frac{1}{5}$	One fifth
	6	1	$\frac{1}{6}$	One sixth
	7	1	$\frac{1}{7}$	One seventh
	8	1	$\frac{1}{8}$	One eighth
	9	1	$\frac{1}{9}$	One ninth
	10	1	$\frac{1}{10}$	One tenth

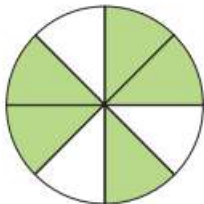


Complete the following table:

	Numerator	Denominator	The Fraction	Word form
①	1	2	$\frac{\dots}{\dots}$	
②	2		$\frac{\dots}{7}$	
③		3	$\frac{2}{\dots}$	
④			$\frac{5}{8}$	
⑤			$\frac{\dots}{\dots}$	Seven ninths

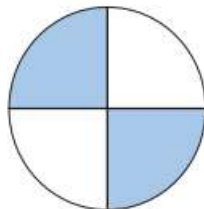


Write the fraction that represents the shaded part:



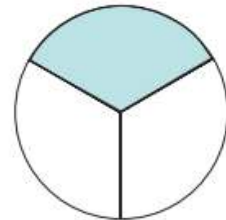
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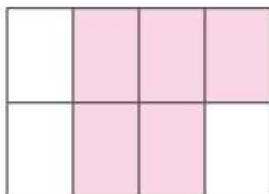
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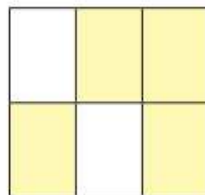
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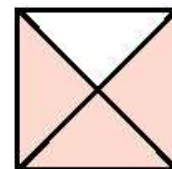
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Complete:

$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \underline{\hspace{2cm}}$$

$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \underline{\hspace{2cm}}$$

$$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \underline{\hspace{2cm}}$$

$$\frac{1}{4} + \frac{1}{4} = \underline{\hspace{2cm}}$$

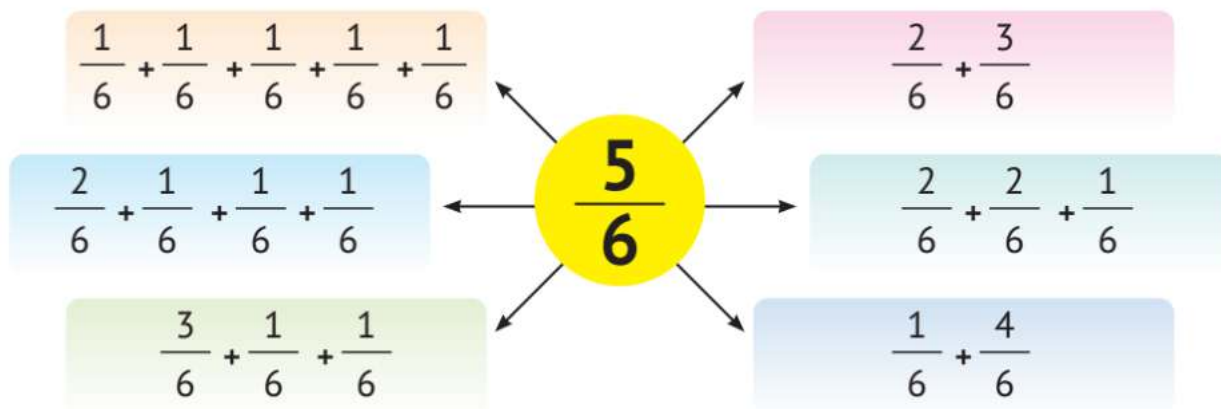


Lesson (2)

Decomposing Fractions

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

$$\frac{5}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$





Decompose the following fractions:

$$\frac{4}{5} = \frac{\quad}{\quad} + \frac{\quad}{\quad} + \frac{\quad}{\quad} + \frac{\quad}{\quad}$$

$$\frac{3}{8} = \frac{\quad}{\quad}$$

$$\frac{2}{6} = \frac{\quad}{\quad}$$



Lesson (3)

More of Decomposing Fractions

Decompose the following fractions in two different ways:

1 $\frac{3}{4} = \frac{\quad}{\quad} + \frac{\quad}{\quad} + \frac{\quad}{\quad}$

2 $\frac{3}{4} = \frac{\quad}{\quad} + \frac{\quad}{\quad}$

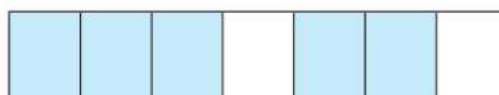
1 $\frac{4}{5} = \frac{\quad}{\quad} + \frac{\quad}{\quad} + \frac{\quad}{\quad}$

2 $\frac{4}{5} = \frac{\quad}{\quad} + \frac{\quad}{\quad}$

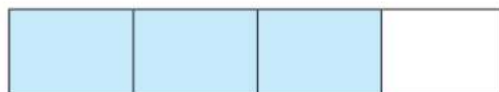


Match:

$$\frac{1}{3} + \frac{1}{3}$$



$$\frac{3}{7} + \frac{2}{7}$$



$$\frac{1}{4} + \frac{2}{4}$$





Lesson (4)

Fractions and Mixed Numbers

Proper fraction:

Is just a fraction where its numerator is **less than** its denominator, such as: $\frac{1}{5}$, $\frac{2}{3}$, $\frac{5}{7}$, $\frac{10}{21}$, ... etc.

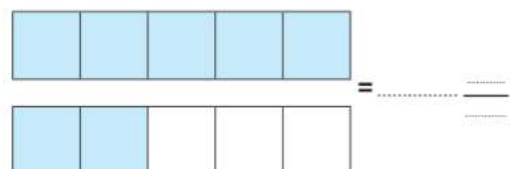
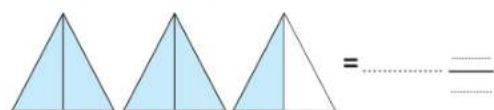
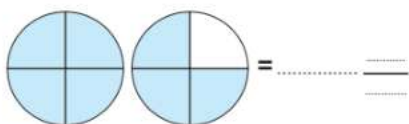
Improper fraction:

Is just a fraction where its numerator is **more than** or **equal to** its denominator, such as: $\frac{7}{5}$, $\frac{5}{3}$, $\frac{7}{7}$, $\frac{11}{2}$, ... etc.

Mixed number:

Is a number consisting of a whole number and a proper fraction, such as: $3\frac{1}{5}$, $4\frac{2}{3}$, $2\frac{5}{7}$, $6\frac{11}{12}$, ... etc.

Write the mixed number that represents the figure:



Match:

$\frac{5}{5}$ •

• **proper fraction** •

• $\frac{9}{7}$

$3\frac{5}{8}$ •

• **improper fraction** •

• $\frac{3}{13}$

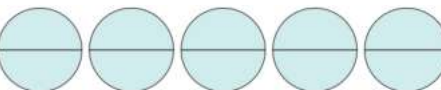
$\frac{5}{7}$ •

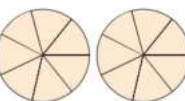
• **mixed number** •

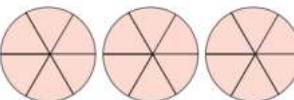
• $2\frac{5}{7}$



The fractional form of the whole number:

$$\frac{10}{2} = 5 \rightarrow 10 \div 2 = 5$$


$$\frac{14}{7} = 2 \rightarrow 14 \div 7 = 2$$


$$\frac{18}{6} = 3 \rightarrow 18 \div 6 = 3$$




Complete:

① $2 = \frac{\dots}{5} = \frac{4}{\dots} = \dots$

② $4 = \frac{\dots}{2} = \frac{20}{\dots} = \dots$

③ $8 = \frac{\dots}{2} = \frac{40}{\dots} = \dots$

④ $1 = \frac{\dots}{5} = \frac{4}{\dots} = \dots$

⑤ $5 = \frac{\dots}{5} = \frac{15}{\dots} = \dots$

⑥ $9 = \frac{\dots}{3} = \frac{36}{\dots} = \dots$

⑦ $3 = \frac{\dots}{5} = \frac{12}{\dots} = \dots$

⑧ $6 = \frac{\dots}{3} = \frac{24}{\dots} = \dots$

⑨ $7 = \frac{\dots}{5} = \frac{21}{\dots} = \dots$



Write each of the following as an improper fraction:

① $3\frac{1}{2} = \dots$

② $5\frac{1}{2} = \dots$

③ $5\frac{1}{4} = \dots$

④ $3\frac{2}{3} = \dots$

⑤ $2\frac{3}{5} = \dots$

⑥ $6\frac{2}{3} = \dots$

⑦ $2\frac{3}{4} = \dots$

⑧ $8\frac{1}{2} = \dots$

⑨ $4\frac{3}{10} = \dots$



Write each of the following as a mixed number:

① $\frac{5}{2} = \dots \frac{\dots}{\dots}$

② $\frac{9}{2} = \dots \frac{\dots}{\dots}$

③ $\frac{15}{4} = \dots \frac{\dots}{\dots}$

④ $\frac{7}{3} = \dots \frac{\dots}{\dots}$

⑤ $\frac{13}{5} = \dots \frac{\dots}{\dots}$

⑥ $\frac{22}{3} = \dots \frac{\dots}{\dots}$

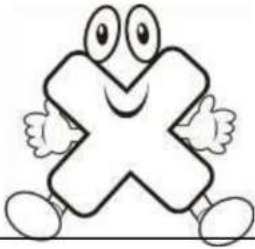
⑦ $\frac{9}{4} = \dots \frac{\dots}{\dots}$

⑧ $\frac{17}{2} = \dots \frac{\dots}{\dots}$

⑨ $\frac{31}{10} = \dots \frac{\dots}{\dots}$



Homework



MULTIPLICATION

$4 \times 7 = \square$

$4 \times 3 = \square$

$4 \times 4 = \square$

$4 \times 8 = \square$

$4 \times 2 = \square$

$4 \times 1 = \square$

$4 \times 5 = \square$

$4 \times 6 = \square$

$4 \times 0 = \square$

$5 \times 3 = \square$

$5 \times 5 = \square$

$5 \times 4 = \square$

$5 \times 6 = \square$

$5 \times 0 = \square$

$5 \times 7 = \square$

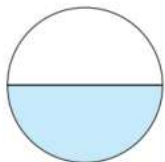
$5 \times 2 = \square$

$5 \times 1 = \square$

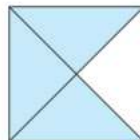
$5 \times 9 = \square$



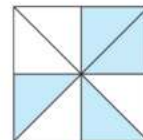
Write the fraction that represents the shaded part:



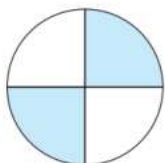
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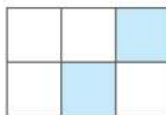
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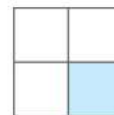
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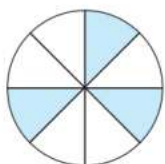
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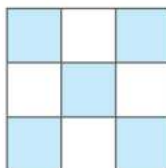
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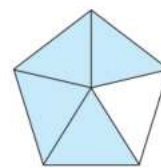
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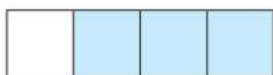
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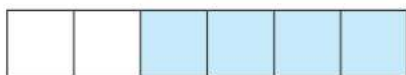
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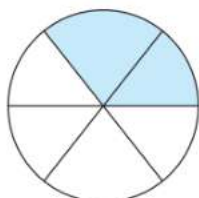
Write the fraction, and then decompose it:



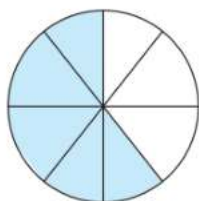
$$\frac{\dots\dots\dots}{\dots\dots\dots} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$



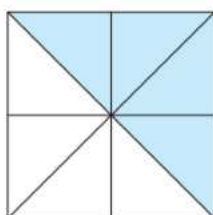
$$\frac{\dots\dots\dots}{\dots\dots\dots} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$



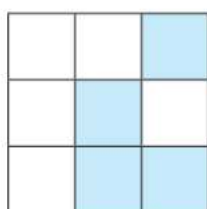
$$\frac{\dots\dots\dots}{\dots\dots\dots} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$



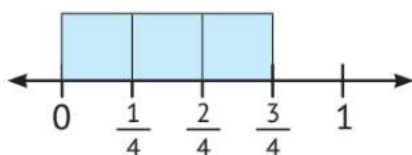
$$\frac{\dots\dots\dots}{\dots\dots\dots} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$



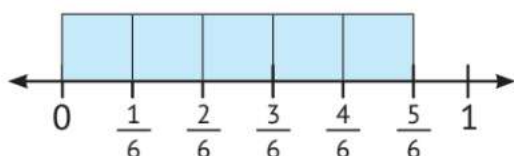
$$\frac{\dots\dots\dots}{\dots\dots\dots} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$



$$\frac{\dots\dots\dots}{\dots\dots\dots} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$



$$\frac{\dots\dots\dots}{\dots\dots\dots} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$



$$\frac{\dots\dots\dots}{\dots\dots\dots} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$





Decompose the following fractions:

$$\frac{5}{6} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$

$$\frac{4}{7} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$

$$1 = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$

$$1 = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$

$$1 = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$



Decompose the following fractions in two different ways:

1 $\frac{5}{7} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$

2 $\frac{5}{7} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$

1 $\frac{5}{8} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$

2 $\frac{5}{8} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$

1 $\frac{6}{9} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$

2 $\frac{6}{9} = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$





Lesson (5)

Adding and Subtracting Fractions

Solve each of the following.

a. $1 + \frac{3}{5} + \frac{1}{5} + 2$

b. $2 + 1 + \frac{5}{6} + \frac{2}{6}$

c. $1 - \frac{2}{5}$

d. $2 - \frac{2}{9}$



Lesson (6)

Adding Mixed Numbers with Like Denominators

Add:

a. $2\frac{3}{8} + 2\frac{2}{8}$

b. $1\frac{4}{5} + \frac{1}{5}$

c. $4\frac{3}{6} + 2\frac{4}{6}$

d. $3\frac{3}{5} + 2\frac{1}{5}$

e. $6 + 3\frac{3}{4}$

f. $5\frac{1}{3} + 2\frac{2}{3}$



Lesson (7)

Subtracting Mixed Numbers with Like Denominators

Subtract:

a. $7\frac{7}{9} - 4\frac{4}{9} =$

b. $3\frac{2}{5} - 2\frac{1}{5} =$

c. $1 - \frac{2}{3} =$

d. $3 - \frac{1}{10} =$

e. $5 - 2\frac{1}{3} =$

f. $1 - \frac{1}{7} - \frac{2}{7} =$





Solve the following problems using numbers.

a. $\frac{3}{5} + \frac{2}{5} =$ _____

c. $\frac{10}{12} + \frac{1}{12} + 3 + 2 =$ _____

e. $3 + 4 + \frac{1}{2} =$ _____

g. $4 + \frac{4}{8} + 2 + \frac{5}{8} =$ _____

b. $\frac{4}{9} + \frac{1}{9} + \frac{2}{9} + 4 =$ _____

d. $1 + 1 + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$ _____

f. $2 + 2 + \frac{3}{5} + \frac{3}{5} =$ _____

h. $\frac{3}{6} + 5 + \frac{5}{6} + 2 =$ _____



Story problems:

1. Ahmed has a number of seeds. On Friday he planted $\frac{3}{9}$ of them, and he planted $\frac{5}{9}$ of them on Saturday. What fraction represents the seeds that Ahmed planted in both of the two days ?

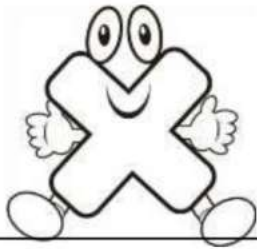
2. Seif studied Math for $1\frac{1}{4}$ hour and science for $\frac{3}{4}$ hour. How many hours did Seif study in all ?

3. Waleed ate $2\frac{3}{8}$ of cakes and Ali ate $1\frac{1}{8}$ of cakes of the same size, what is the difference between what Waleed ate and what Ali ate ?





Homework



MULTIPLICATION

$5 \times 7 = \square$

$5 \times 3 = \square$

$5 \times 4 = \square$

$5 \times 8 = \square$

$5 \times 2 = \square$

$5 \times 1 = \square$

$5 \times 5 = \square$

$5 \times 6 = \square$

$5 \times 0 = \square$

$6 \times 3 = \square$

$6 \times 5 = \square$

$6 \times 4 = \square$

$6 \times 6 = \square$

$6 \times 0 = \square$

$6 \times 7 = \square$

$6 \times 2 = \square$

$6 \times 1 = \square$

$6 \times 9 = \square$



Solve the following problems:

a. $2\frac{4}{9} + 1\frac{2}{9}$

b. $2\frac{3}{5} + 1\frac{4}{5}$

c. $3\frac{2}{5} + 1\frac{1}{5}$

d. $1 + 1\frac{1}{6}$

e. $5\frac{5}{6} + 2\frac{1}{6}$

f. $2\frac{1}{7} + 3\frac{3}{7}$

g. $3\frac{2}{5} - 2\frac{1}{5}$

h. $2\frac{6}{9} - 1\frac{2}{9}$

i. $3\frac{4}{7} - 1\frac{3}{7}$

j. $3 - 2\frac{1}{8}$

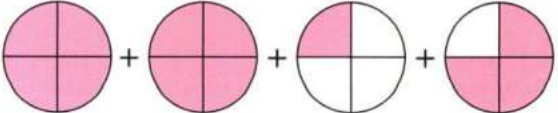
k. $3\frac{2}{5} - 1\frac{4}{5}$

l. $2 + 1\frac{1}{7} + 3\frac{3}{7}$





Choose the correct answer:

1.  = _____

A. $2\frac{1}{4}$

B. $2\frac{1}{2}$

C. $2\frac{3}{4}$

D. 3

2. $\frac{5}{9} + \frac{4}{9} =$ _____

A. $\frac{1}{9}$

B. $\frac{9}{18}$

C. 1

D. $\frac{20}{81}$

3. $4 + \frac{7}{11} + 2 + \frac{1}{11} =$ _____

A. $6\frac{8}{11}$

B. $6\frac{8}{22}$

C. $2\frac{6}{11}$

D. $7\frac{8}{11}$

4. $1\frac{1}{4} + \frac{3}{4} =$ _____

A. $2\frac{1}{4}$

B. 2

C. 4

D. $2\frac{3}{4}$

5. $\frac{1}{5} + \frac{3}{5} + \frac{-}{5} = 1$

A. $\frac{1}{5}$

B. $\frac{2}{5}$

C. $\frac{3}{5}$

D. 1

6. $4 + \frac{1}{3} =$ _____

A. $4\frac{1}{3}$

B. $\frac{4}{3}$

C. $\frac{12}{3}$

D. $5\frac{1}{3}$

7. $3 + \frac{2}{5} + 1 + \frac{1}{5} =$ _____

A. $2\frac{3}{5}$

B. $4\frac{3}{5}$

C. $2\frac{1}{5}$

D. $\frac{7}{5}$

8. $\frac{6}{10} - \frac{2}{10} =$ _____

A. $\frac{8}{10}$

B. $\frac{4}{10}$

C. $\frac{4}{20}$

D. $\frac{8}{20}$

9. $3\frac{5}{8} - 2\frac{1}{8} =$ _____

A. $2\frac{6}{8}$

B. $2\frac{4}{8}$

C. $1\frac{6}{8}$

D. $1\frac{4}{8}$

10. $1 - \frac{3}{5} =$ _____

A. $\frac{2}{5}$

B. $\frac{3}{5}$

C. $\frac{2}{4}$

D. $\frac{2}{10}$

11. $2 - \frac{5}{7} =$ _____

A. $1\frac{2}{7}$

B. 1

C. $\frac{10}{7}$

D. $1\frac{5}{7}$

12. $6 - 3\frac{1}{4} =$ _____

A. $3\frac{1}{4}$

B. $9\frac{1}{4}$

C. $2\frac{3}{4}$

D. $2\frac{1}{4}$

13. $\frac{1}{5} + \frac{2}{5} - \frac{2}{5} =$ _____

A. $\frac{2}{5}$

B. $\frac{1}{5}$

C. 1

D. $\frac{6}{5}$





Story problems:

1.

Waleed ate $2\frac{3}{8}$ of cakes and Ali ate $1\frac{1}{8}$ of cakes of the same size, what is the difference between what Waleed ate and what Ali ate ?

2.

Mona has $24\frac{1}{2}$ pounds, she bought a doll for $22\frac{1}{2}$ pounds.
How much money left with her ?

3.

Hady has $3\frac{1}{4}$ cookies, he gave $2\frac{3}{4}$ to his sister. How many cookies does he have left ?

4.

Ezz bakes a cake for his grandmother.
If he has $2\frac{1}{4}$ pans of butter, and the recipe needs $1\frac{2}{4}$ pans of butter. How much butter left will he have ?



5.

Nadia is making falafel for a party.
Her recipe calls for $\frac{1}{2}$ teaspoon sodium bicarbonate. The recipe makes enough for 10 people. Nadia is having 40 guests. In order to feed all her guests, she wants to quadruple her recipe. How many teaspoons of sodium bicarbonate will she use ?





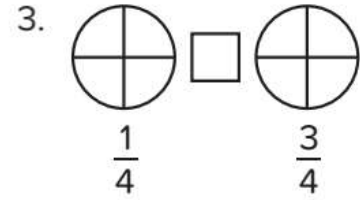
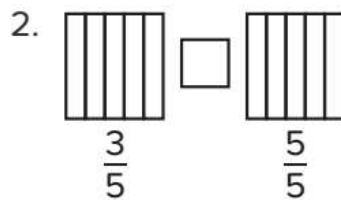
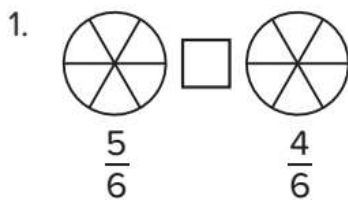
Concept (2): Comparing Fractions

Lesson (8)

Comparing Fractions

[1] Comparing fractions with like denominators:

Comparing Fractions with Like Denominators Shade each shape to show the given fractions. Then, compare the fractions using the symbols $<$, $>$, or $=$.



4. Fill in the blanks to complete the statement.

If fractions have the same _____, then the one with the _____ numerator is the _____ fraction.

5. Order the following fractions from least to greatest.

$\frac{6}{8}$ $\frac{2}{8}$ $\frac{5}{8}$ $\frac{3}{8}$ $\frac{7}{8}$ $\frac{1}{8}$ $\frac{8}{8}$

_____ ; _____ ; _____ ; _____ ; _____ ; _____ ; _____



Put the suitable relation ($<$), ($>$) or ($=$) in the blanks:





[2] Comparing fractions with like numerators:

Comparing Fractions with Like Numerators Write the fractions shown underneath each shape, and then compare each pair of fractions using the symbols $<$, $>$, or $=$.

1.

2.

3.



4. Fill in the blanks to complete the statement.

If fractions have the same _____, then the one with the _____ denominator is the _____ fraction.



Write $<$, $>$, or $=$ in each box to compare the two fractions.

5. $\frac{5}{6}$ $\frac{5}{8}$

6. $\frac{3}{6}$ $\frac{3}{4}$

7. $\frac{4}{8}$ $\frac{4}{5}$



8. Order the following fractions from least to greatest.

$\frac{3}{5}$ $\frac{3}{8}$ $\frac{3}{3}$ $\frac{3}{6}$ $\frac{3}{12}$ _____ ; _____ ; _____ ; _____ ; _____



Put the suitable relation ($<$), ($>$) or ($=$) in the blanks:

1.

2.

3.

4.

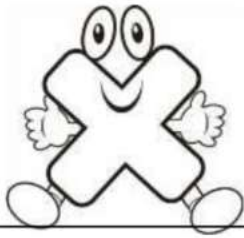
5.

6.





Homework



MULTIPLICATION

$7 \times 3 = \square$

$7 \times 5 = \square$

$7 \times 4 = \square$

$7 \times 6 = \square$

$7 \times 0 = \square$

$7 \times 7 = \square$

$7 \times 2 = \square$

$7 \times 1 = \square$

$7 \times 9 = \square$

$5 \times 7 = \square$

$5 \times 3 = \square$

$5 \times 4 = \square$

$5 \times 8 = \square$

$5 \times 2 = \square$

$5 \times 1 = \square$

$5 \times 5 = \square$

$5 \times 6 = \square$

$5 \times 0 = \square$



[1] Put the suitable relation (<), (>) or (=) in the blanks:

(1) $\frac{1}{5}$ $\frac{4}{5}$

(2) $\frac{3}{4}$ $\frac{1}{4}$

(3) $2\frac{7}{9}$ $2\frac{5}{9}$

(4) $2\frac{1}{8}$ $\frac{17}{8}$



[2] Put the suitable relation (<), (>) or (=) in the blanks:

(1) $\frac{3}{4}$ $\frac{3}{5}$

(2) $\frac{1}{7}$ $\frac{1}{3}$

(3) $\frac{2}{8}$ $\frac{2}{4}$

(4) $\frac{8}{25}$ $\frac{8}{13}$

(5) $2\frac{7}{9}$ $2\frac{7}{8}$

(6) $2\frac{1}{2}$ $2\frac{1}{9}$





[3] Arrange each of the following numbers:

(1) $\frac{2}{11}, \frac{7}{11}, \frac{4}{11}, \frac{10}{11}$ Ascending order:

(2) $\frac{13}{7}, \frac{5}{7}, \frac{9}{7}, \frac{4}{7}, \frac{11}{7}$ Descending order:



[4] Arrange each of the following numbers:

(1) $\frac{7}{13}, \frac{7}{5}, \frac{7}{9}, \frac{7}{4}, \frac{7}{11}$ Ascending order:

(2) $\frac{12}{5}, \frac{12}{7}, \frac{12}{17}, \frac{12}{13}, \frac{12}{15}$ Descending order:



[5] Put the suitable relation (<), (>) or (=) in the blanks:

1.  

2.  

3.  

4.  

5.  

6.  

7.  

8.  

9.  

10.  

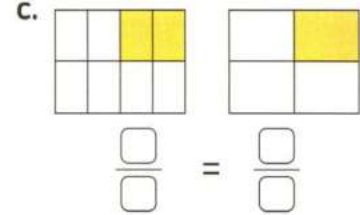
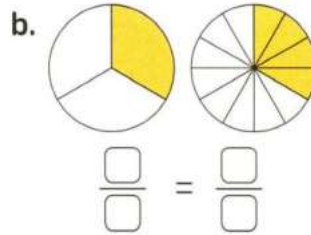
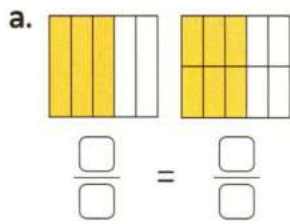




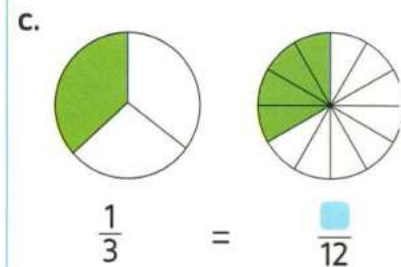
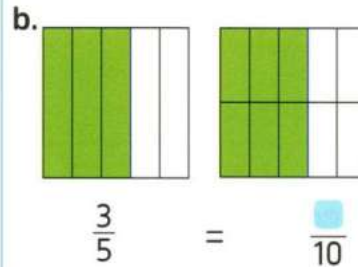
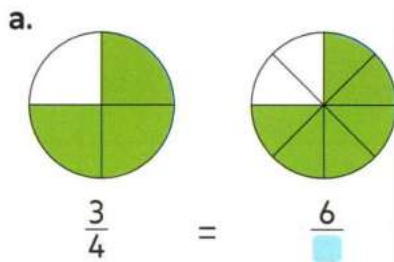
Lesson (9)

Same Fraction, Different Ways

Write the equivalent fractions for each.



1. Use the models to write the equivalent fractions.



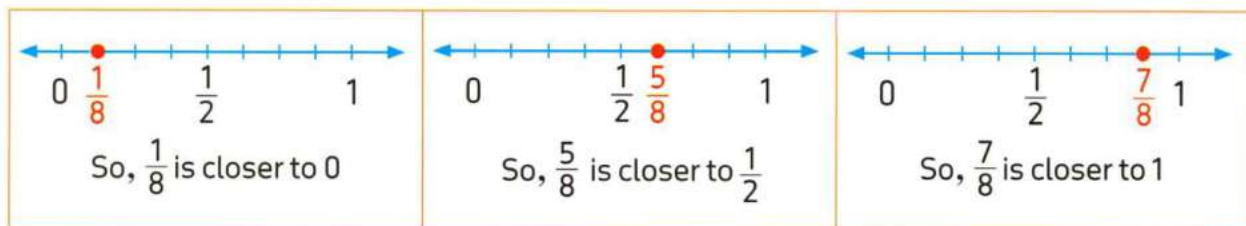
Lesson (10)

Benchmark Fractions

Find benchmarks for $\frac{1}{8}$, $\frac{5}{8}$ and $\frac{7}{8}$

Locate each fraction on a number line. Decide if the fraction is closer to 0, $\frac{1}{2}$ or 1

Solution 



Write whether the fraction is closer to 0, $\frac{1}{2}$ or 1.
Use the number line.

a. $\frac{8}{10}$

b. $\frac{6}{10}$

c. $\frac{2}{10}$

d. $\frac{9}{10}$

e. $\frac{4}{10}$





Lesson (11)

Applications: Comparing Fractions Using Benchmark Fractions

Use benchmark fractions to compare:

a. $\frac{3}{6}$ $\frac{4}{12}$

d. $\frac{7}{6}$ $\frac{5}{7}$

b. $\frac{4}{10}$ $\frac{5}{6}$

e. $\frac{6}{12}$ $\frac{4}{8}$

c. $\frac{11}{12}$ $\frac{4}{9}$

f. 1 $\frac{8}{5}$

Homework

Choose the correct answer:

1. The fraction $\frac{5}{8}$ is nearest to the benchmark fraction _____

- A. $\frac{1}{2}$ B. $1\frac{1}{2}$
C. 1 D. 0

2. $\frac{7}{12}$ is closer to the benchmark fraction _____

- A. 1 B. $\frac{1}{2}$
C. 0 D. $\frac{1}{4}$

3. $\frac{8}{9}$ is closer to the benchmark fraction _____

- A. 2 B. 1
C. 0 D. $\frac{1}{2}$

4. $\frac{7}{12} \bigcirc \frac{10}{10}$

- A. > B. <
C. =

5. Which of the following fractions is equal to $\frac{1}{2}$?

- A. $\frac{4}{7}$ B. $\frac{5}{10}$
C. $\frac{6}{3}$ D. $\frac{8}{8}$

6. Which of the following fractions is greater than $\frac{1}{2}$?

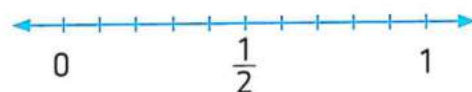
- A. $\frac{2}{4}$ B. $\frac{2}{6}$
C. $\frac{5}{8}$ D. $\frac{10}{20}$

Circle all fractions that are equivalent to $\frac{1}{2}$

$\frac{2}{5}$ $\frac{3}{6}$ $\frac{7}{12}$ $\frac{5}{10}$ $\frac{10}{20}$ $\frac{10}{18}$ $\frac{4}{8}$ $\frac{8}{14}$ $\frac{5}{6}$ $\frac{8}{16}$

Write whether the fraction is closer to 0, $\frac{1}{2}$ or 1.

Use the number line.



a. $\frac{8}{10}$ b. $\frac{6}{10}$ c. $\frac{2}{10}$ d. $\frac{9}{10}$ e. $\frac{4}{10}$

**Use benchmark fractions to compare:**

a. $\frac{7}{18}$ $\frac{3}{4}$

d. $\frac{3}{7}$ $\frac{6}{5}$

b. $\frac{10}{20}$ $\frac{9}{16}$

e. 0 $\frac{2}{3}$

c. $\frac{7}{12}$ $\frac{10}{10}$

f. $\frac{10}{7}$ 1

**Compare using (<), (>) or (=):**

a. $\frac{4}{7}$ $\frac{1}{2}$

d. $\frac{5}{10}$ $\frac{2}{6}$

g. $\frac{3}{4}$ $\frac{3}{10}$

j. $\frac{11}{18}$ $\frac{9}{5}$

b. $\frac{7}{8}$ $\frac{1}{2}$

e. $\frac{4}{8}$ $\frac{6}{12}$

h. $\frac{5}{6}$ $\frac{5}{12}$

k. $\frac{6}{14}$ $\frac{7}{10}$

c. $\frac{8}{8}$ 1

f. $\frac{10}{20}$ $\frac{11}{18}$

i. $\frac{5}{6}$ $\frac{3}{10}$

l. $\frac{9}{8}$ $\frac{8}{9}$





Concept (3)

Multiplication and Fractions

Lesson (12)

Equivalent Fractions Using Identity Property

Identity Property Review Solve each problem. Then, circle the problems that show the Identity Property of Multiplication.

1. $45 \times 1 = \underline{\hspace{2cm}}$

2. $1 \times 34,953 = \underline{\hspace{2cm}}$

3. $\frac{2}{3} \times 1 = \underline{\hspace{2cm}}$

4. $0 \times 4 = \underline{\hspace{2cm}}$

5. $1 \times \frac{4}{5} = \underline{\hspace{2cm}}$

6. $\frac{1}{1} \times \frac{1}{8} = \underline{\hspace{2cm}}$

7. $\frac{3}{7} \times \frac{4}{4} = \underline{\hspace{2cm}}$

8. $\frac{5}{6} \times 0 = \underline{\hspace{2cm}}$



Lesson (13)

Equivalent Fractions Using Multiplication and Division

Complete to find equivalent fractions.

a.

$$\frac{1}{3} \xrightarrow{\times 4} \frac{\quad}{\quad} = \frac{\quad}{\quad} \xrightarrow{\times 4}$$

b.

$$\frac{3}{6} \xrightarrow{\div 3} \frac{\quad}{\quad} = \frac{\quad}{\quad} \xrightarrow{\div 3}$$

c.

$$\frac{2}{7} \xrightarrow{\times 2} \frac{\quad}{\quad} = \frac{\quad}{\quad} \xrightarrow{\times 2}$$

d.

$$\frac{4}{16} \xrightarrow{\div 4} \frac{\quad}{\quad} = \frac{\quad}{\quad} \xrightarrow{\div 4}$$



Lesson (14)

Finding the Missing in Equivalent Fractions

Complete.

a. $\frac{2}{3} = \frac{\square}{9}$

b. $\frac{4}{6} = \frac{12}{\square}$

c. $\frac{3}{6} = \frac{\square}{2}$

d. $\frac{2}{7} = \frac{\square}{14}$

e. $\frac{8}{10} = \frac{4}{\square}$

f. $\frac{\square}{6} = \frac{10}{12}$



Generate 5 equivalent fractions for each fraction:

a. $\frac{2}{3}$; _____ ; _____ ; _____ ; _____ ; _____

b. _____ ; $\frac{2}{4}$; _____ ; _____ ; _____ ; _____

c. $\frac{3}{5}$; _____ ; _____ ; _____ ; _____ ; _____

d. _____ ; _____ ; $\frac{3}{9}$; _____ ; _____ ; _____



Find the value of X:

a. $\frac{9}{12} = \frac{X}{4}$ _____

b. $\frac{18}{27} = \frac{2}{X}$ _____

c. $\frac{X}{5} = \frac{15}{15}$ _____

d. $\frac{X}{4} = \frac{2}{8}$ _____

e. $\frac{10}{X} = \frac{2}{3}$ _____

f. $\frac{X}{42} = \frac{1}{7}$ _____



10. Nabil had 9 cookies. $\frac{2}{3}$ of them were chocolate chip. How many cookies were chocolate chip? (Hint: $\frac{2}{3} = \frac{?}{9}$)



Different Kinds of Cookies



Lesson (15)

Multiplying by a Whole

		Model	Addition sentence	Multiplication sentence
a.	$\frac{3}{5}$		$\frac{3}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$	$\frac{3}{5} = 3 \times \frac{1}{5}$
b.	$\frac{2}{7}$		$\frac{2}{7} = \frac{1}{7} + \frac{1}{7}$	$\frac{2}{7} = 2 \times \frac{1}{7}$
c.	$\frac{4}{6}$		$\frac{4}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$	$\frac{4}{6} = 4 \times \frac{1}{6}$



Multiply:

a. $5 \times \frac{1}{7} = \underline{\hspace{2cm}}$

d. $\frac{3}{4} \times 2 = \underline{\hspace{2cm}}$

b. $\frac{1}{3} \times 3 = \underline{\hspace{2cm}}$

e. $\frac{2}{9} \times 4 = \underline{\hspace{2cm}}$

c. $10 \times \frac{1}{5} = \underline{\hspace{2cm}}$

f. $3 \times \frac{3}{5} = \underline{\hspace{2cm}}$



Homework

Complete:

a. $\frac{1}{2} = \frac{5}{\dots\dots\dots}$

c. $\frac{3}{5} = \frac{9}{\dots\dots\dots}$

e. $\frac{16}{18} = \frac{\dots\dots\dots}{9}$

g. $\frac{\dots\dots\dots}{13} = \frac{4}{26}$

b. $\frac{5}{15} = \frac{\dots\dots\dots}{3}$

d. $\frac{8}{9} = \frac{48}{\dots\dots\dots}$

f. $\frac{5}{7} = \frac{30}{\dots\dots\dots}$

h. $\frac{\dots\dots\dots}{9} = \frac{32}{72}$



Simplify:

a. $\frac{5}{10} = \frac{\dots\dots\dots}{\dots\dots\dots}$

d. $\frac{6}{9} = \frac{\dots\dots\dots}{\dots\dots\dots}$

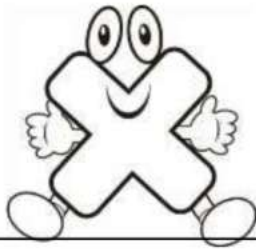
b. $\frac{2}{6} = \frac{\dots\dots\dots}{\dots\dots\dots}$

e. $\frac{5}{20} = \frac{\dots\dots\dots}{\dots\dots\dots}$

c. $\frac{6}{12} = \frac{\dots\dots\dots}{\dots\dots\dots}$

f. $\frac{6}{21} = \frac{\dots\dots\dots}{\dots\dots\dots}$





MULTIPLICATION

$6 \times 7 = \square$

$6 \times 3 = \square$

$6 \times 4 = \square$

$6 \times 8 = \square$

$6 \times 2 = \square$

$6 \times 1 = \square$

$6 \times 5 = \square$

$6 \times 6 = \square$

$6 \times 0 = \square$

$7 \times 4 = \square$

$7 \times 3 = \square$

$7 \times 5 = \square$

$7 \times 7 = \square$

$7 \times 6 = \square$

$7 \times 0 = \square$

$7 \times 9 = \square$

$7 \times 2 = \square$

$7 \times 1 = \square$



Complete to get equivalent fractions:

a.

$$\frac{1}{3} \xrightarrow{\times 4} \frac{\quad}{\quad}$$

$$\frac{1}{3} \xrightarrow{\times 4} \frac{\quad}{\quad}$$

b.

$$\frac{2}{5} \xrightarrow{\times 5} \frac{\quad}{\quad}$$

$$\frac{2}{5} \xrightarrow{\times 5} \frac{\quad}{\quad}$$

c.

$$\frac{3}{7} \xrightarrow{\times 2} \frac{\quad}{\quad}$$

$$\frac{3}{7} \xrightarrow{\times 2} \frac{\quad}{\quad}$$

d.

$$\frac{3}{6} \xrightarrow{\div 3} \frac{\quad}{\quad}$$

$$\frac{3}{6} \xrightarrow{\div 3} \frac{\quad}{\quad}$$

e.

$$\frac{4}{8} \xrightarrow{\div 4} \frac{\quad}{\quad}$$

$$\frac{4}{8} \xrightarrow{\div 4} \frac{\quad}{\quad}$$

f.

$$\frac{20}{50} \xrightarrow{\div 10} \frac{\quad}{\quad}$$

$$\frac{20}{50} \xrightarrow{\div 10} \frac{\quad}{\quad}$$



Multiply:

a. $\frac{1}{8} \times 7 = \underline{\hspace{2cm}}$

b. $7 \times \frac{1}{9} = \underline{\hspace{2cm}}$

c. $4 \times \frac{1}{9} = \underline{\hspace{2cm}}$

d. $8 \times \frac{1}{9} = \underline{\hspace{2cm}}$





Unit (9) Assessment

[1] Choose the correct answer:

1. $\frac{3}{8} =$ _____
 A. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ B. $\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$ C. $\frac{2}{8} + 1$ D. $\frac{1}{8} + 2$
2. $\frac{14}{3} =$ _____ as a mixed number.
 A. $4 \frac{1}{3}$ B. $3 \frac{2}{4}$ C. $4 \frac{2}{3}$ D. $2 \frac{2}{3}$
3. $\frac{3}{8} >$ _____
 A. $\frac{3}{4}$ B. $\frac{5}{8}$ C. $1 \frac{1}{8}$ D. $\frac{1}{8}$
4. Which of the following is the least ?
 A. $\frac{4}{9}$ B. $\frac{7}{9}$ C. $\frac{2}{9}$ D. 1
5. $2 \frac{3}{7} =$ _____ "as an improper fraction."
 A. $\frac{17}{3}$ B. $\frac{17}{7}$ C. $\frac{14}{7}$ D. $\frac{11}{7}$
6. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$ _____
 A. $\frac{4}{5}$ B. $\frac{111}{5}$ C. $3 \times \frac{1}{5}$ D. $\frac{3}{15}$
7. $\frac{7}{8} =$ _____
 A. $\frac{21}{11}$ B. $\frac{14}{16}$ C. $1 \frac{7}{4}$ D. $\frac{14}{24}$

[2] Complete:

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. $7 \frac{3}{9} -$ _____ $= 4 \frac{1}{9}$ 3. _____ $- 2 \frac{1}{5} = 3 \frac{3}{5}$ 5. $2 + \frac{1}{7} + 3 + \frac{3}{7} =$ _____ 7. $5 \times \frac{1}{4} = \frac{3}{4} +$ _____ | <ol style="list-style-type: none"> 2. $\frac{5}{8} = \frac{\quad}{40}$ 4. $5 \frac{1}{6} + 1 \frac{4}{6} =$ _____ 6. $2 - \frac{2}{9} =$ _____ 8. $6 \frac{1}{7} - 2 \frac{3}{7} =$ _____ |
|--|---|



[3] Choose the correct answer:

- $\frac{5}{7} > \underline{\hspace{2cm}}$
 A. $\frac{7}{7}$ B. $\frac{6}{7}$ C. $\frac{1}{7}$ D. 1
- Which fraction is equivalent to $\frac{4}{12}$?
 A. $\frac{8}{20}$ B. $\frac{2}{9}$ C. $\frac{1}{4}$ D. $\frac{3}{9}$
- Sameh has 20 cakes. If $\frac{3}{5}$ of them are covered with chocolate, then the number of chocolate cakes = $\underline{\hspace{2cm}}$ cakes.
 A. 10 B. 13 C. 12 D. 17
- The bar model that represents the fraction of the colored parts of the multiplication sentence $2 \times \frac{1}{5}$ is $\underline{\hspace{2cm}}$
 A.  B.  C.  D. 
- $\frac{2}{3} = \frac{\underline{\hspace{1cm}}}{9}$
 A. 1 B. 4 C. 6 D. 8
- $\frac{3}{8} < \underline{\hspace{2cm}}$
 A. $\frac{3}{10}$ B. $\frac{3}{9}$ C. $\frac{3}{12}$ D. $\frac{3}{7}$
- Peter ate $\frac{4}{6}$ of his chocolate bar. The fraction of the remaind part is $\underline{\hspace{2cm}}$
 A. $\frac{2}{3}$ B. $\frac{1}{6}$ C. $\frac{4}{6}$ D. $\frac{1}{3}$

[4] Answer the following:

- Sara is making pancake batter. The recipe calls for $\frac{7}{10}$ of a jug of milk, and she only has $\frac{2}{10}$ of a jug of milk. How much more milk does Sara need to make the pancake batter?

- Arrange the following fractions from the greatest to the least.
 $\frac{7}{9}, \frac{4}{9}, \frac{9}{9}, \frac{1}{9}, \frac{5}{9}$

- Use the benchmark fractions 0, $\frac{1}{2}$ and 1 to order the following fractions from least to greatest.
 $\frac{3}{8}, \frac{7}{9}, \frac{5}{10}$

- Hagar used $3\frac{4}{6}$ kg of meat. Amal used $2\frac{2}{6}$ kg of meat. What is the total amount of meat did they use altogether?



UNIT

10

Theme 3 Fractions, Decimals, and Proportional Relationships

Unit 10 Decimals



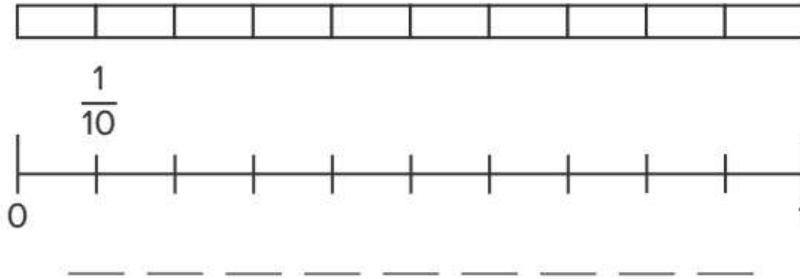


Concept (1): Understanding Decimals

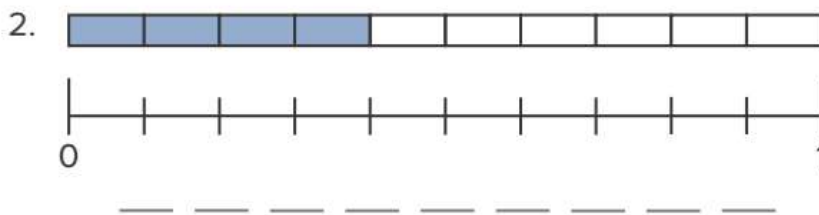
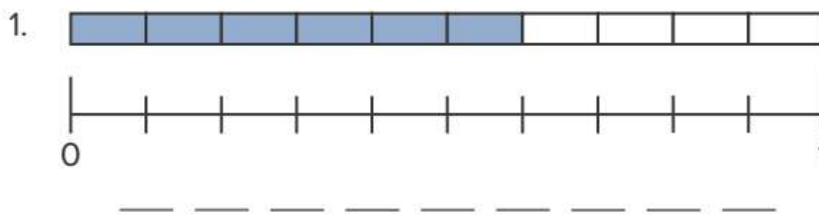
Lesson (1)

Let's Explore Decimals

Break It Apart Follow along with your teacher to fill in the fractions and decimals on the number line.



Connect the Parts Record what fraction and decimal are shown.





1. Write each fraction as a decimal.

a. $\frac{9}{10} =$ _____ b. $\frac{2}{10} =$ _____ c. $\frac{8}{10} =$ _____ d. $\frac{6}{10} =$ _____

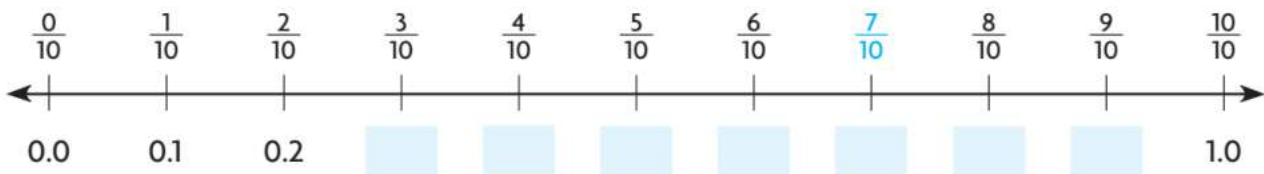
2. Write each decimal as a fraction.

a. $0.7 =$ _____ b. $0.1 =$ _____ c. $0.5 =$ _____ d. $0.4 =$ _____



Use a number line.

Label the number line with decimals that are equivalent to the fractions. Locate the point $\frac{7}{10}$.



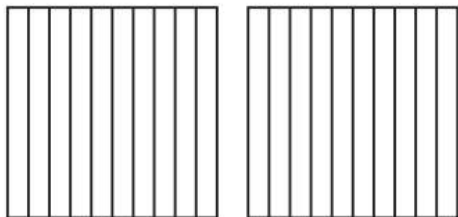
_____ names the same amount as $\frac{7}{10}$.



Use a model and a place-value chart.

Fraction

Shade $1\frac{6}{10}$ of the model.



Write: _____

Read: one and six tenths

Decimal

$1\frac{6}{10}$ is 1 whole and 6 tenths.

Think: Use the ones place to record wholes.

Ones	.	Tenths	Hundredths
	.		

Write: _____

Read: _____

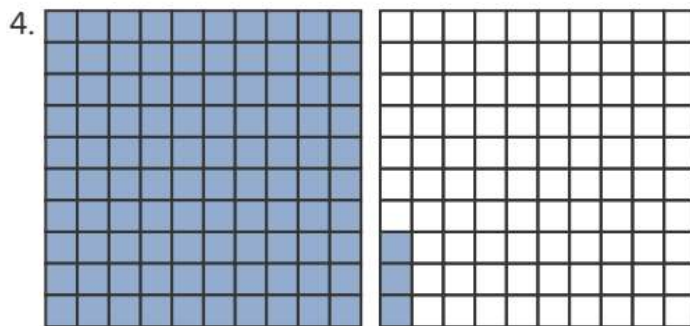
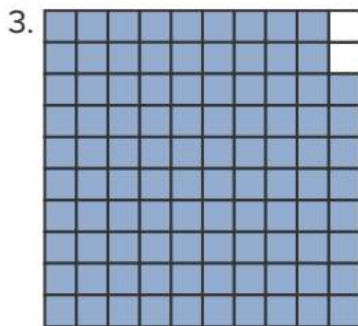
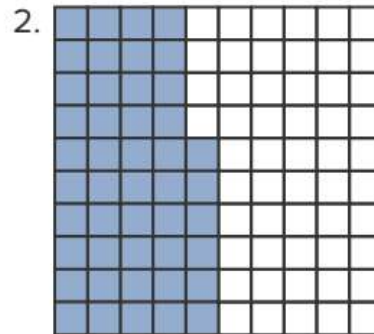
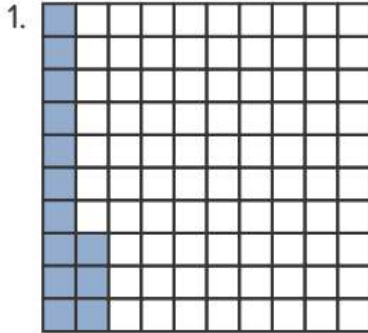




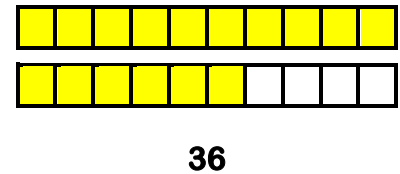
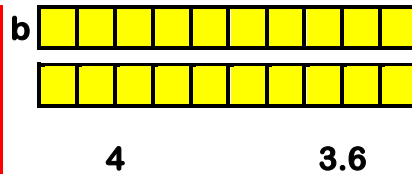
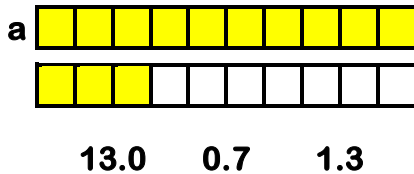
Lesson (2)

Hundredths

More Cups of Rice Record what decimal is shown.

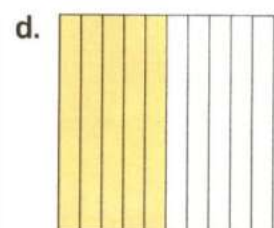
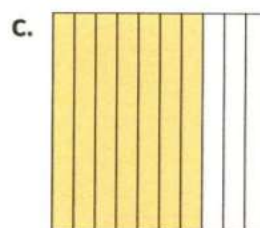
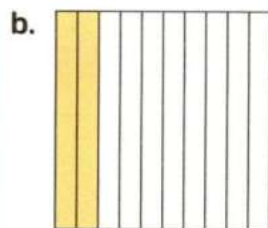
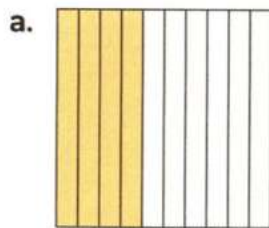


Circle the decimal that represent the shaded part:



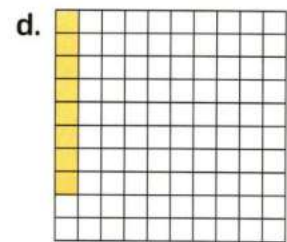
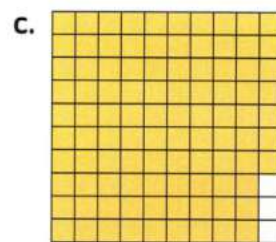
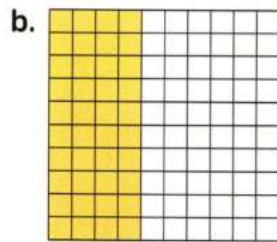
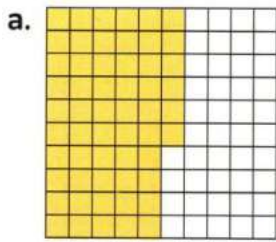
Homework

Write the fraction and decimal for the colored part.





Write the decimal that represents each colored part.



Practice: Copy and Solve Write the fraction or mixed number as a decimal.

8. $5\frac{9}{10}$

9. $\frac{1}{10}$

10. $\frac{7}{10}$

11. $8\frac{9}{10}$

12. $\frac{6}{10}$

13. $6\frac{3}{10}$

14. $\frac{5}{10}$

15. $9\frac{7}{10}$



Practice: Copy and Solve Write the fraction or mixed number as a decimal.

8. $\frac{9}{100}$

9. $4\frac{55}{100}$

10. $\frac{10}{100}$

11. $9\frac{33}{100}$

12. $\frac{92}{100}$

13. $14\frac{16}{100}$



Lesson (3)

The Place Value

Writing About Math Use the number to answer the questions: **532.89**

1. What is the value of the 3? _____
2. What digit is in the Hundredths place? _____
3. What is the value of the digit in the Hundreds place? _____
4. What digit is in the Tenths place? _____



In the number 325.78

- a. What is the value of 7?
- b. What is the value of 2?
- c. What is the value of the digit in Hundredths place?





Lesson (4)

Decimals in Different Forms

Use the example in the chart to help you answer the following problems.

Standard Form	Word Form	Unit Form	Expanded Form
4.23	four and twenty-three hundredths	4 Ones, 2 Tenths, 3 Hundredths	$4 + 0.2 + 0.03$



Write the numbers in word form.

1. 4.53

2. 0.48

3. $2 + 0.1 + 0.03$



Write the numbers in unit form.

4. 4.52

5. seven and thirty-four hundredths

6. sixty-nine hundredths





Write the numbers in expanded form.

7. 2.04

8. two and fifty-Hundredths

9. 5 Ones, 6 Tenths, 8 Hundredths



Write the numbers in standard form.

10. 7 Ones, 9 Hundredths

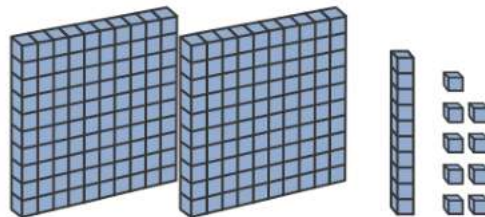
11. $5 + 0.5 + 0.01$

12. nine and forty-three Hundredths



Fill in the blanks to match the decimal models.

Example:



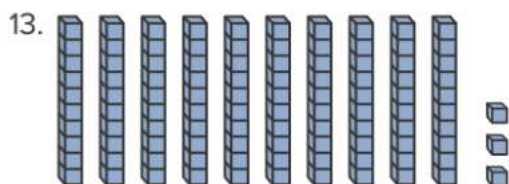
Standard form: 2.19

Word form: two and nineteen hundredths

Unit form: 2 Ones, 1 Tenth, 9 Hundredths

Expanded form: $2 + 0.1 + 0.09$



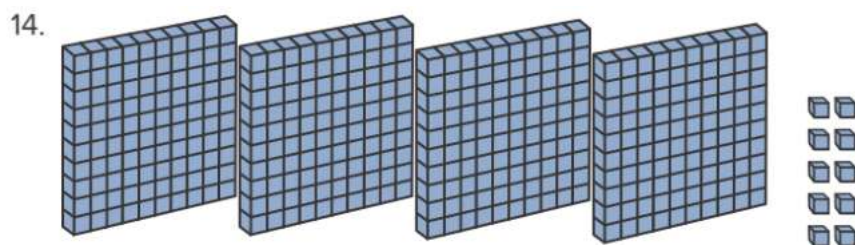


Standard form: _____

Word form: _____

Unit form: _____

Expanded form: _____



Standard form: _____

Word form: _____

Unit form: _____

Expanded form: _____

Homework

Write the value of the circled digit in each of the following.

a. 32.7⁴ _____

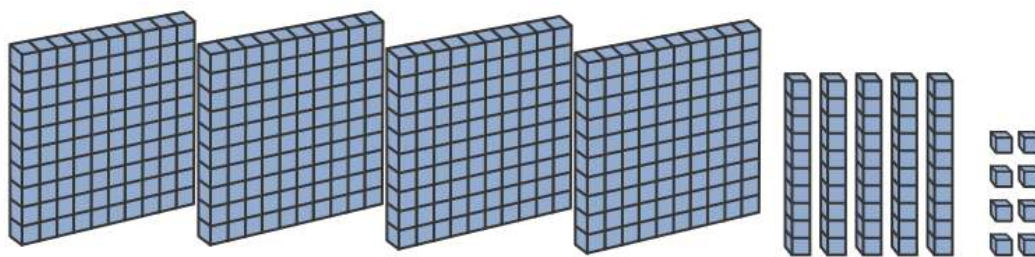
b. 174.²5 _____

c. 1³5.58 _____

d. ⁷42.27 _____



15.



Standard form: _____

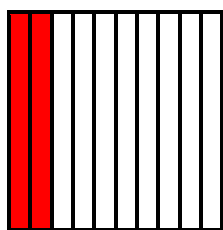
Word form: _____

Unit form: _____

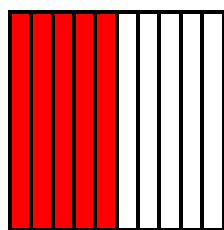
Expanded form: _____



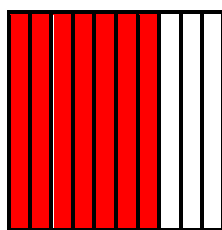
Join each decimal to its represented shape:



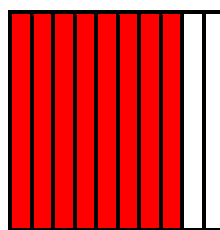
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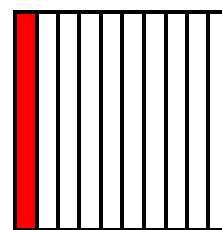
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•

•

0.8

•

0.7

•

0.1

•

0.2

•

0.5

**Complete:**

- a. The value of the digit 6 in the number 2.65 is _____
- b. The value of the digit 5 in the number 132.85 is _____
- c. The value of the digit 9 in the number 19.82 is _____
- d. The place value of the digit 7 in the number 2.74 is _____
- e. The place value of the digit 0 in the number 10.62 is _____
- f. The place value of the digit 5 in the number 12.15 is _____

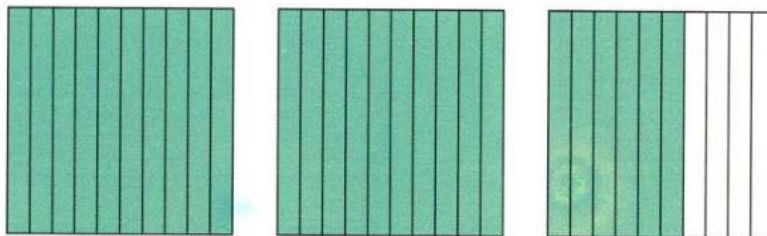


Concept (2): Decimals and Fractions

Lesson (5)

Same Value, Different Ways

Model :



Mixed Number : $2\frac{6}{10}$

Decimal : 2.6

Word form : Two and six tenths.



Write the fraction for each of the following decimals.

a. 0.4

b. 0.13

c. 0.07

d. 2.93

Solution

a. $\frac{4}{10}$

b. $\frac{13}{100}$

c. $\frac{7}{100}$

d. $2\frac{93}{100}$

Write the fraction form for each of the following decimals:

a. 0.9 =	b. 2.7 =	c. 3.74 =
d. 7.05 =	e. 7.6 =	f. 3.4 =
g. 10.05 =	h. 2.02 =	i. 2.20 =
j. 5.97 =	k. 4.79 =	l. 6.28 =
m. 3.27 =	n. 5.17 =	o. 3.07 =



Lesson (6)

The Whole Breakdown

Decompose the units to represent each number as Tenth and then write the number as a fraction:

a. 3

Tenths : _____

In fraction form : _____

b. 1

Tenths : _____

In fraction form : _____

c. 4

Tenths : _____

In fraction form : _____

d. 1.3

Tenths : _____

In fraction form : _____

e. 1.5

Tenths : _____

In fraction form : _____

f. 2.3

Tenths : _____

In fraction form : _____

g. 10.8

Tenths : _____

In fraction form : _____

h. 24.6

Tenths : _____

In fraction form : _____



Decompose the units to represent each number as Hundredth and then write the number as a fraction:

a. 1

Hundredths : _____

In fraction form : _____

b. 3

Hundredths : _____

In fraction form : _____

c. 19

Hundredths : _____

In fraction form : _____

d. 1.5

Hundredths : _____

In fraction form : _____





Complete.

a. 7 = _____ hundredths

b. _____ = 20 tenths

c. 3.4 = _____ tenths

d. 16 tenths = _____

e. $\frac{185}{100}$ = _____ hundredths

f. 11.2 = _____ hundredths



Lesson (7)

All Things Equal

Circle the equations that show the equivalency:

1. $\frac{1}{2} = \frac{3}{6}$

2. $\frac{2}{3} = \frac{2}{6}$

3. $\frac{8}{10} = \frac{4}{10}$

4. $\frac{8}{12} = \frac{4}{6}$

5. $\frac{2}{3} = \frac{6}{9}$

6. $\frac{4}{8} = \frac{0}{4}$

7. $\frac{1}{4} = \frac{5}{8}$

8. $\frac{2}{10} = \frac{4}{20}$

9. $\frac{5}{10} = \frac{1}{2}$



Write equivalent or not equivalent.

a. 0.7 and 0.70 _____

b. 0.04 and 0.4 _____

c. 0.9 and 0.09 _____

d. 0.28 and 0.82 _____

e. 0.17 and 0.07 _____

f. 0.1 and 0.10 _____



Write an equivalent decimal for each. You may use decimal models.

a. 0.8 _____

b. 0.7 _____

c. 0.90 _____

d. 0.2 _____

e. 0.5 _____

f. 0.10 _____

g. 0.40 _____

h. 0.6 _____





Write equivalent or not equivalent.

a. $\frac{3}{10}$ and $\frac{30}{100}$ _____

c. $\frac{80}{100}$ and $\frac{8}{10}$ _____

e. $\frac{60}{100}$ and $\frac{6}{10}$ _____

b. $\frac{5}{100}$ and $\frac{50}{10}$ _____

d. $\frac{4}{100}$ and $\frac{4}{10}$ _____

f. $\frac{20}{100}$ and $\frac{2}{100}$ _____



Write an equivalent fraction for each.

a. $\frac{7}{10}$ _____

b. $\frac{80}{100}$ _____

c. $\frac{9}{10}$ _____

d. $\frac{4}{10}$ _____

e. $\frac{10}{100}$ _____

f. $\frac{20}{100}$ _____

g. $\frac{3}{10}$ _____

h. $\frac{50}{100}$ _____



Fill the missing denominator or numerator. Circle the fraction that is more than 1 whole.

a. $\frac{5}{10} = \frac{50}{\square}$

d. $\frac{200}{100} = \frac{\square}{10}$

g. $\frac{3}{10} = \frac{\square}{100}$

j. $\frac{900}{100} = \frac{\square}{10}$

b. $\frac{20}{100} = \frac{\square}{10}$

e. $\frac{70}{\square} = \frac{7}{10}$

h. $\frac{60}{100} = \frac{\square}{10}$

k. $\frac{8}{\square} = \frac{80}{100}$

c. $\frac{4}{10} = \frac{40}{\square}$

f. $\frac{80}{10} = \frac{\square}{100}$

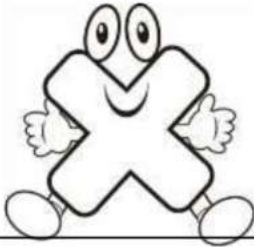
i. $\frac{70}{10} = \frac{\square}{100}$

l. $\frac{10}{100} = \frac{\square}{10}$





Homework



MULTIPLICATION

$4 \times 3 = \square$

$4 \times 5 = \square$

$4 \times 4 = \square$

$4 \times 6 = \square$

$4 \times 0 = \square$

$4 \times 7 = \square$

$4 \times 2 = \square$

$4 \times 1 = \square$

$4 \times 9 = \square$

$8 \times 7 = \square$

$8 \times 3 = \square$

$8 \times 4 = \square$

$8 \times 8 = \square$

$8 \times 2 = \square$

$8 \times 1 = \square$

$8 \times 5 = \square$

$8 \times 6 = \square$

$8 \times 0 = \square$



Decompose the units to represent each number as **Tenths and then write the number as a fraction:**

1. 1

Tenth _____

In fraction form _____

2. 3

Tenths _____

In fraction form _____

3. 1.5

Tenths _____

In fraction form _____

4. 2.3

Tenths _____

In fraction form _____





Decompose the units to represent each number as **Hundredth and then write the number as a fraction:**

6. 1

Hundredths _____

In fraction form _____

7. 3

Hundredths _____

In fraction form _____

8. 1.5

Hundredths _____

In fraction form _____

9. 2.3

Hundredths _____

In fraction form _____



Record an equivalent fraction and decimal for each problem:

1. $\frac{1}{10}$

Fraction: _____

Decimal: _____

2. $\frac{70}{100}$

Fraction: _____

Decimal: _____

3. $\frac{6}{10}$

Fraction: _____

Decimal: _____

4. 0.4

Fraction: _____

Decimal: _____

5. 0.30

Fraction: _____

Decimal: _____

6. 0.9

Fraction: _____

Decimal: _____





Concept (3): Operations on Decimals

Lesson (8)

Comparing Decimals

Using the place value chart, Put (<), (>) or (=):

1. 0.34 _____ 0.4

Ones	Decimal	Tenths	Hundredths
0	.	3	4
0	.	4	

4. 0.54 _____ 0.45

Ones	Decimal	Tenths	Hundredths
	.		
	.		

5. 0.62 _____ 0.26

Ones	Decimal	Tenths	Hundredths
	.		
	.		



Compare Using (<), (>) or (=):

a. 0.2 ○ 0.13

b. 0.31 ○ 0.13

c. 0.34 ○ 0.04

d. 0.30 ○ 0.3

e. 0.35 ○ 0.3

f. 0.7 ○ 0.68

g. 0.18 ○ 0.4

h. 0.60 ○ 0.8

i. 0.07 ○ 0.7



Lesson (9)

Comparing Fractions and Decimals

Compare Using (<), (>) or (=):

1. $\frac{24}{100}$ _____ 0.6

2. $\frac{6}{10}$ _____ 0.34

3. 1.04 _____ 98 Tenths

4. $\frac{134}{100}$ _____ 1.03

5. $\frac{9}{10}$ _____ 0.89

6. 7 Tenths _____ 0.7

7. 2.07 _____ 2 Ones and 7 Tenths

8. $\frac{50}{100}$ _____ 5.00



Choose the correct answer from A, B, C or D:

1. 0.4 ○ 0.34

A. < B. = C. >

2. 4.5 ○ 4.51

A. < B. > C. =

3. 2.4 ○ $2\frac{42}{100}$

A. > B. < C. =

4. $\frac{125}{100}$ ○ 1.3

A. > B. < C. =

5. 3.74 ○ $\frac{374}{100}$

A. > B. < C. =

6. 0.9 < _____

A. 0.7 B. 0.15
C. 0.8 D. 1.2

7. Which of the following is greater than 1.64 ?

A. 1.7 B. 1.5
C. 1.47 D. 1.08

8. Which of the following is smaller than

 $\frac{36}{100}$?
A. $\frac{4}{10}$ B. 0.7
C. 0.53 D. 0.23

9. 7 tenths ○ $\frac{17}{100}$

A. > B. = C. <

[Alex. 23]

10. 17 hundredths ○ 17 tenths

A. > B. < C. =





Lesson (10,11)

Adding Fractions with Denominators 10 and 100

Make Equivalent Fractions:

$$1. \frac{30}{100} = \frac{\boxed{}}{10}$$

$$2. \frac{4}{10} = \frac{40}{\boxed{}}$$

$$3. \frac{2}{10} = \frac{\boxed{}}{100}$$

$$4. \frac{90}{100} = \frac{\boxed{}}{10}$$

$$5. \frac{50}{100} = \frac{\boxed{}}{10}$$



$$6. 1\frac{70}{100} = 1\frac{7}{\boxed{}}$$

$$7. \frac{100}{100} = \frac{\boxed{}}{10}$$

$$8. \frac{40}{10} = \frac{\boxed{}}{100}$$

$$9. \frac{600}{100} = \frac{60}{\boxed{}}$$

$$10. 2\frac{8}{10} = 2\frac{\boxed{}}{100}$$



Complete to find the result:

$$a. \frac{6}{10} + \frac{23}{100} = \frac{}{100} + \frac{23}{100} = \frac{}{100}$$

$$b. \frac{7}{10} + \frac{60}{100} = \frac{7}{10} + \frac{}{10} = \frac{}{10}$$

$$c. \frac{3}{10} + \frac{8}{100} = \frac{}{100} + \frac{8}{100} = \frac{}{100}$$

$$d. \frac{23}{100} + \frac{9}{10} = \frac{23}{100} + \frac{}{100} = \frac{}{100}$$

$$e. \frac{32}{100} + \frac{5}{10} = \frac{32}{100} + \frac{}{100} = \frac{}{100}$$

$$f. \frac{6}{10} + \frac{82}{100} = \frac{}{100} + \frac{82}{100} = \frac{}{100}$$





Homework

Using the place value chart, Put (<), (>) or (=):

6. 0.80 _____ 0.09

Ones	Decimal	Tenths	Hundredths
	.		
	.		

7. 0.73 _____ 0.69

Ones	Decimal	Tenths	Hundredths
	.		
	.		

8. 0.10 _____ 0.1

Ones	Decimal	Tenths	Hundredths
	.		
	.		

9. 0.49 _____ 0.04

Ones	Decimal	Tenths	Hundredths
	.		
	.		



Compare Using (<), (>) or (=):

a. 0.52 ○ 0.54

b. 0.9 ○ 0.82

c. 1.52 ○ 1.45

d. 3.7 ○ 3.70

e. 3.4 ○ 4.56

f. 2.05 ○ 2.15





Choose the correct answer from A, B, C or D:

11. Which of the following is NOT true ?

A. $7.32 < 7.4$

B. $3.78 > 3.54$

C. $0.01 < 0.1$

D. $\frac{13}{10} > 3.1$

12. Which of the following is true ?

A. $0.53 > 0.55$

B. $0.03 > 0.3$

C. $1.1 > 0.99$

D. $4.8 < 4.75$



Make Equivalent Fractions:

a. $\frac{6}{10} = \frac{\quad}{100}$

c. $\frac{4}{10} = \frac{40}{\quad}$

e. $\frac{70}{100} = \frac{7}{\quad}$

g. $\frac{80}{100} = \frac{8}{\quad}$



Find the result:

a. $\frac{6}{10} + \frac{23}{100} = \frac{\quad}{100} + \frac{23}{100} = \frac{\quad}{100}$

b. $\frac{7}{10} + \frac{60}{100} = \frac{7}{10} + \frac{\quad}{10} = \frac{\quad}{10}$

c. $\frac{3}{10} + \frac{8}{100} = \frac{\quad}{100} + \frac{8}{100} = \frac{\quad}{100}$

d. $\frac{23}{100} + \frac{9}{10} = \frac{23}{100} + \frac{\quad}{100} = \frac{\quad}{100}$

e. $\frac{32}{100} + \frac{5}{10} = \frac{32}{100} + \frac{\quad}{100} = \frac{\quad}{100}$

f. $\frac{6}{10} + \frac{82}{100} = \frac{\quad}{100} + \frac{82}{100} = \frac{\quad}{100}$



**Unit (10) Assessment****[1] Choose the correct answer:**

- a. The value of the digit 3 in the number 15.23 is _____
- A. 0.03 B. 0.30 C. 3 D. 30
- b. $0.07 =$ _____ "as a fraction."
- A. $\frac{7}{10}$ B. $\frac{7}{100}$ C. $\frac{70}{10}$ D. $\frac{70}{100}$
- c. $1.52 \bigcirc 1.6$
- A. $>$ B. $<$ C. $=$
- d. $7 + 0.1 + 0.05 =$ _____
- A. 71.5 B. 7.15 C. 7.51 D. 1.75
- e. Which fraction is equivalent to 0.9 ?
- A. $\frac{90}{10}$ B. $\frac{9}{100}$ C. $\frac{9}{10}$ D. 90
- f. $\frac{35}{100} + \frac{2}{10} <$ _____
- A. $\frac{7}{10}$ B. $\frac{55}{100}$ C. $\frac{3}{10}$ D. $\frac{49}{100}$
- g. The digit in the tenths place in the number 56.79 is _____
- A. 5 B. 6 C. 7 D. 9

**[2] Complete:**

- a. $\frac{5}{10} + \frac{25}{100} =$ _____
- b. $5.7 =$ _____ tenths
- c. 3.16 in word form is _____
- d. The place value of the digit 3 in the number 54.32 is _____
- e. Six and eight hundredths = _____ in standard form.
- f. $21.7 =$ _____ hundredths
- g. $3\frac{7}{10}$ is equivalent to _____ as decimal.
- h. 5 tens and 3 tenths = _____



[3] Choose the correct answer:

- a. $0.07 + 0.2 =$ _____
 A. 72 tenths B. 27 tenths C. 72 hundredths D. 27 hundredths
- b. $2\frac{1}{10} + 3\frac{1}{100} =$ _____
 A. 5.2 B. 5.12 C. 5.11 D. 5.22
- c. $7.2 >$ _____
 A. 7.3 B. 7.16 C. 7.20 D. 7.29
- d. $\frac{2}{10} + \frac{27}{100} =$ _____
 A. $\frac{29}{100}$ B. $\frac{209}{100}$ C. $\frac{47}{100}$ D. $\frac{49}{100}$
- e. $0.34 \bigcirc 0.4$
 A. $>$ B. $<$ C. $=$
- f. $\frac{810}{100} = \frac{\quad}{10}$
 A. 8100 B. 810 C. 81 D. 8.1
- g. $1\frac{40}{100} =$ _____
 A. 140 B. 14 C. 1.4 D. 1.04



[4] Answer the following:

- Amira bought 1.5 kilograms of tomatoes. Nada bought 1.6 kilograms of tomatoes.
Who bought less ?

- Adam drank 0.6 liter of juice. Omar drank $\frac{4}{10}$ liter of juice. Who drank more ?

- Samy has $\frac{5}{10}$ liters of orange juice and $\frac{35}{100}$ liters of apple juice. How many liters does samy have in all ?

- Maha wrote 7.03 in word form as seven and 3 tenths
Is Maha right or wrong ? If she is wrong correct her mistake.





UNIT

11

Theme 3 | Fractions, Decimals, and Proportional Relationships

Unit 11

Data with Fractions





Concept (1)

Creating and Analyzing Graphs

Lesson (1)

Different Graphs

Remember

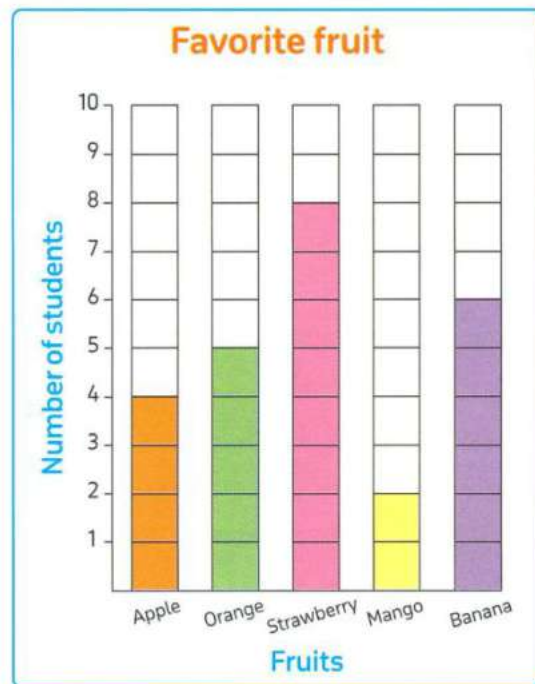
You have learned before that data can be represented by more than one way.

For example :

- These data about students' favorite fruit.

Sandra represented the following data by a bar graph.

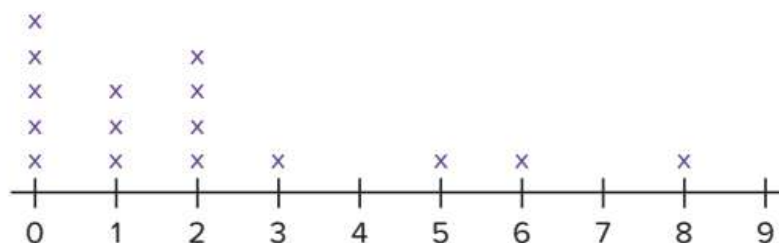
Favorite fruit	
Fruits	Number of students
Apple	4
Orange	5
Strawberry	8
Mango	2
Banana	6



A bar graph is used to compare data.

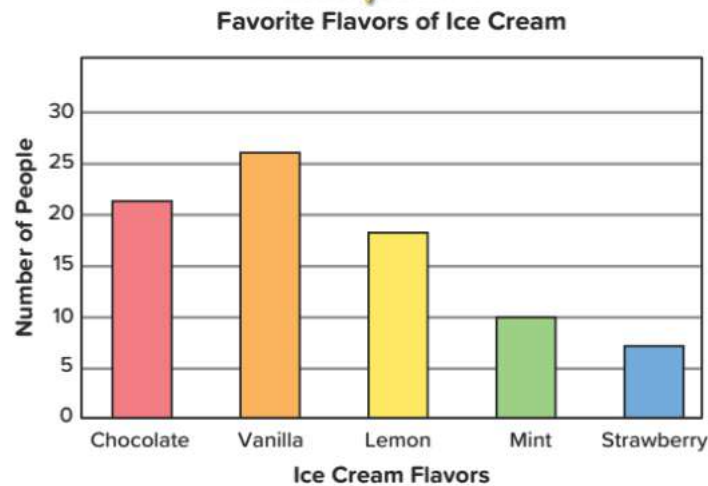
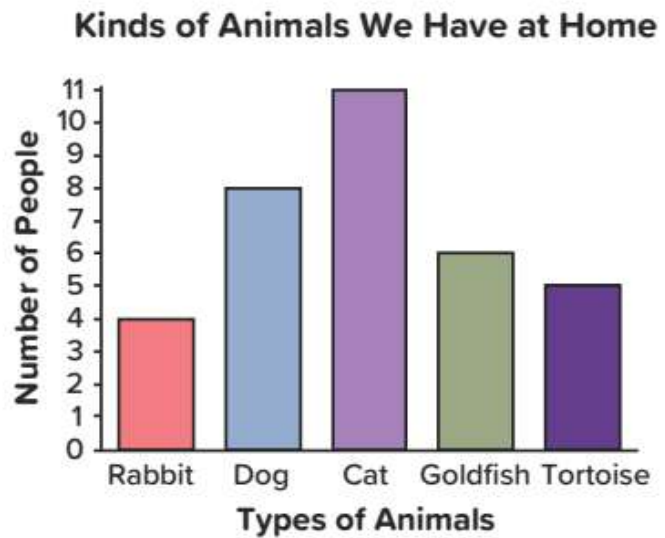
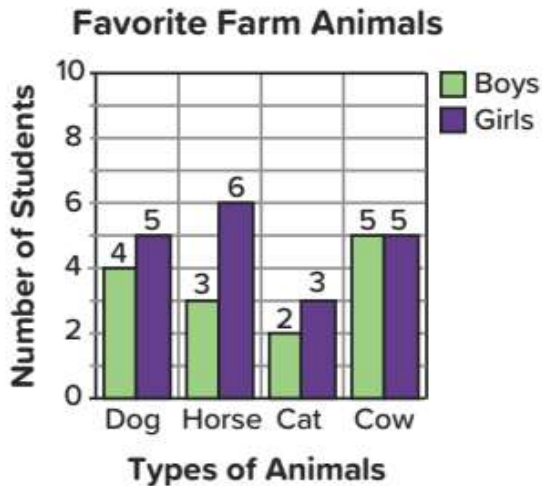


Number of Animals at Home



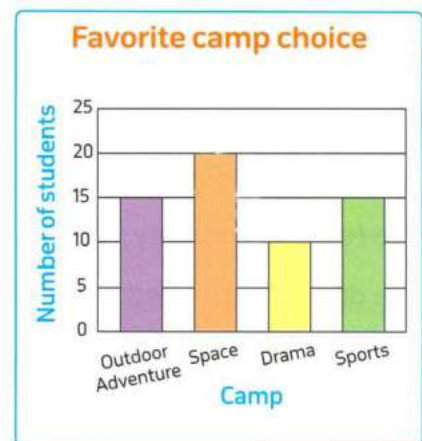
Key
x = 1 student





Observe the given graph and answer the following questions.

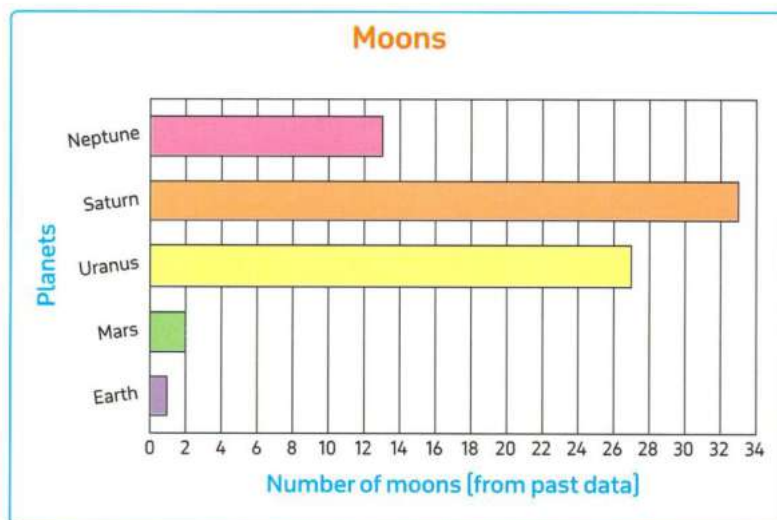
- Which camp do most students prefer?
- Which camp was chosen by the fewest students?
- How many students chose space camp?
- How many more students chose space camp than sports camp?
- Which two camps were chosen by the same number of students?





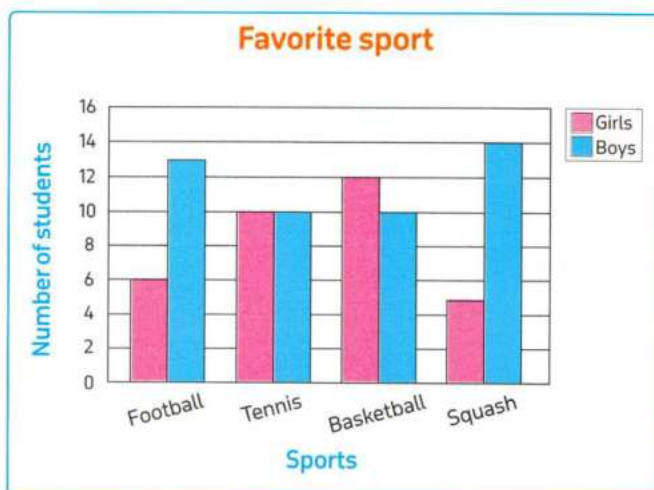
Observe the given graph and answer the following questions.

- Which planet has the lowest number of moons?
- What is the number of moons around Mars?
- Which planet has less moons than Neptune but more than Earth?
- Which planet has more moons than Mars but fewer than Uranus?



Observe the given graph and answer the following questions.

- Which is the most preferred sport of the girls?
- Which is the most preferred sport of the boys?
- How many girls like squash?
- Which sport is liked by 10 girls?
- How many students like basketball?



The data showing the favorite fast food of boys and girls of grade four.

Fast Food	Pizza	Noodles	Pasta	Burgers
Boys	25	40	15	25
Girls	30	35	30	45

Circle the best type of graph that represents this data.

Line plot

bar graph

pictograph

double bar graph

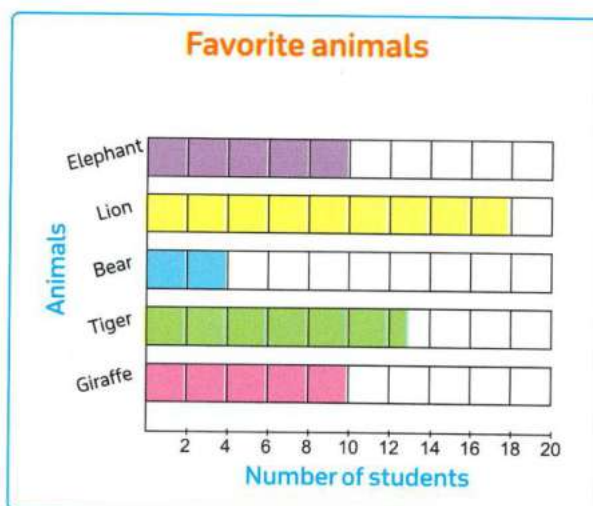




The following graph shows students' votes for their favorite animals.

Answer the following questions.

- Which animal is liked the most?
- Which animal is liked the least?
- How many students liked tiger?
- Which two animals were liked by the same number of students?
- How many more students liked tiger than bear?

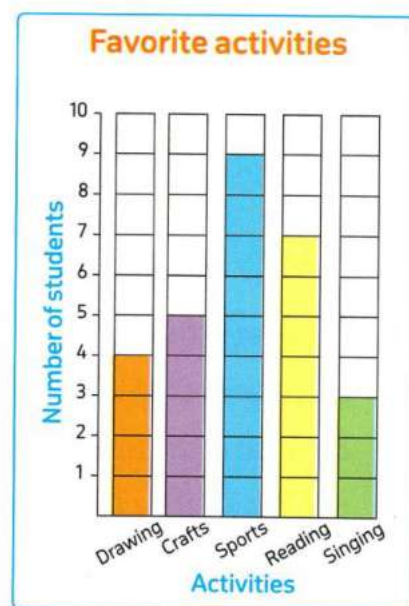


The following graph shows students' votes for their favorite activities.

Complete the following table. Then, answer the questions.

	Favorite activities				
Activity	Drawing	Crafts	Sports	Reading	Singing
Number of students					

- Which activity did the most students prefer?
- Which activity was chosen by the fewest students?
- How many students chose reading?
- How many more students chose sports than crafts?
- Which two activities their sum equals the number of students chose sports?



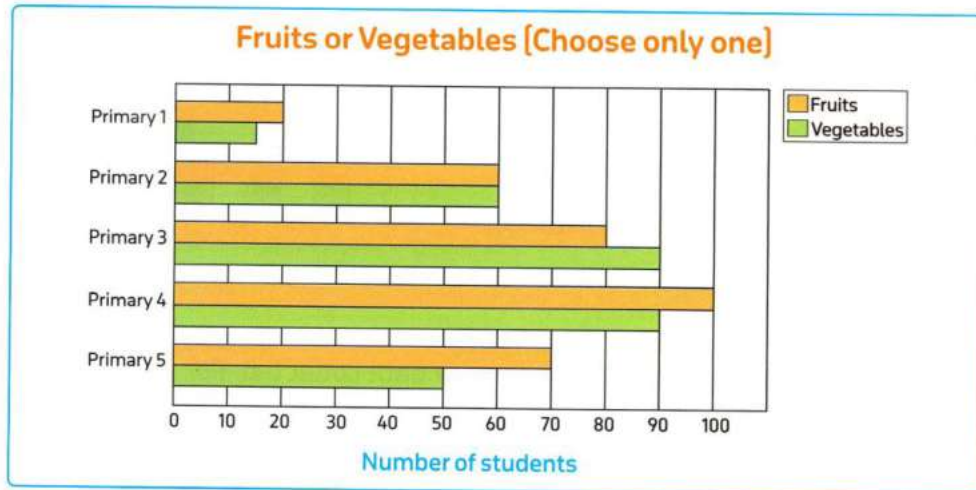
Which type of graph would be best to represent the highest and the lowest temperature degrees in Cairo for 5 days?

- A. Bar graph B. Pictograph C. Double bar graph D. Line plot





Use the double bar graph to answer the questions about what students in each grade prefer.



- Which grade has the same number of students who like fruits and vegetables ?
- Which grade likes vegetables more than fruits ?
- How many more students in Primary 4 like fruits versus students in Primary 1 ?
- How many students like fruits in both Primary 1 and 2 ?
- How many more students in Primary 2 and Primary 3 like vegetables than in Primary 4 and Primary 5 ?
- How many total students were surveyed ?
- Why is this a good data set to use a double bar graph ?



A meteorologist compares rain fall in 2000 and 2020 in different countries in Sub-Saharan Africa.

Circle the best type of graph that represents this data.

Line plot

bar graph

pictograph

double bar graph





Lesson (2)

Plotting Along

1. Use the following data to make a line plot.

$6\frac{1}{2}$	7	5	7	7	6	$6\frac{1}{2}$	$7\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$
$5\frac{1}{2}$	6	$6\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	7	5	6	$6\frac{1}{2}$	$5\frac{1}{2}$



Use the following data to create a line plot, then answer the questions.

a. 11 kg ; $12\frac{1}{4}$ kg ; $11\frac{3}{4}$ kg ; $11\frac{1}{2}$ kg ; 12 kg ; $11\frac{1}{2}$ kg ; $11\frac{1}{4}$ kg ; $11\frac{1}{4}$ kg ; $11\frac{1}{2}$ kg ; 12 kg



1. Give the line plot a title.
2. What is the most common record ?
3. What is the least common records ?



The following data shows the marks of mathematics test for students. Create a line plot for the given data.

18	19	17	$18\frac{1}{2}$	20	$16\frac{1}{2}$	$18\frac{1}{2}$	$19\frac{1}{2}$	$17\frac{1}{2}$	20	17	$18\frac{1}{2}$
17	$17\frac{1}{2}$	$18\frac{1}{2}$	$17\frac{1}{2}$	19	$18\frac{1}{2}$	$17\frac{1}{2}$	17	$18\frac{1}{2}$	20	18	$17\frac{1}{2}$





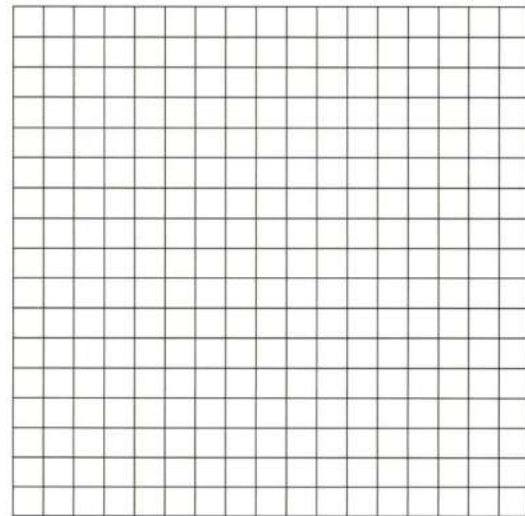
Lesson (3)

Breaking the Bar

The following data shows the walking distance in a week by two friends Bassem and Amal. The data are given in kilometers. Represent these data by a double bar graph showing the week's data. Then use the graph to answer the following questions.

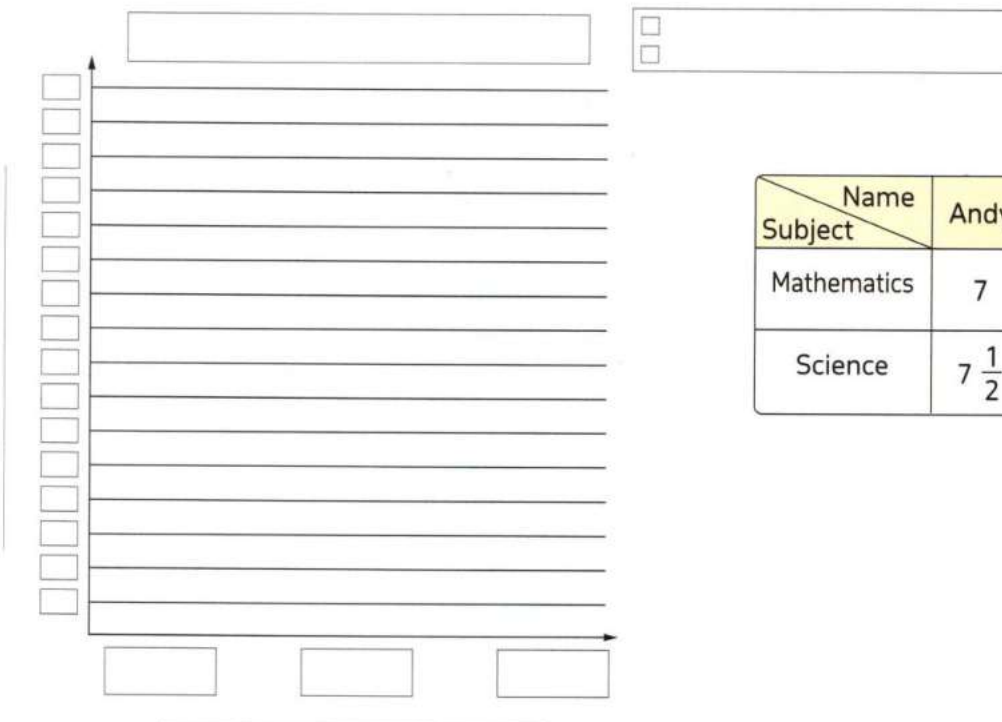
Days Name	Sunday	Monday	Tuesday	Wednesday	Thursday
Bassem	$2\frac{1}{4}$	$1\frac{1}{2}$	$3\frac{3}{4}$	3	$3\frac{1}{2}$
Amal	$1\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{4}$	4

- Which day Bassem walked the longest distance ?
- Which day Amal walked the shortest distance ?
- On which day did Bassem and Amal's total distance equals 4 kilometers ?
- How many total kilometers did Amal walk in all ?
- How many total kilometers did Bassem walk in all ?
- On which day did Bassem walk twice as far as he did in Monday ?



2. The following data shows the marks of three students in Mathematics and Science tests and full mark is 10.

Represent these data using double bar graph.



Name Subject	Andy	Reem	Nour
Mathematics	7	6	$5\frac{1}{2}$
Science	$7\frac{1}{2}$	$6\frac{1}{2}$	8



Homework

b. 3 m ; $3\frac{1}{3}\text{ m}$; $4\frac{1}{3}\text{ m}$; $3\frac{2}{3}\text{ m}$; $3\frac{1}{3}\text{ m}$; $4\frac{2}{3}\text{ m}$; $4\frac{1}{3}\text{ m}$; 3 m ; $3\frac{1}{3}\text{ m}$; $4\frac{2}{3}\text{ m}$.



1. Give the line plot a title.
2. What is the most common record ?
3. What is the least common record ?

Kamal recorded the lengths of two types of plants in four days as follow :

	Mon.	Wed.	Fri.	Sun.
Plant[1]	5 cm	$5\frac{2}{5}\text{ cm}$	6 cm	$6\frac{1}{5}\text{ cm}$
Plant[2]	4 cm	$4\frac{2}{5}\text{ cm}$	$4\frac{3}{5}\text{ cm}$	5 cm

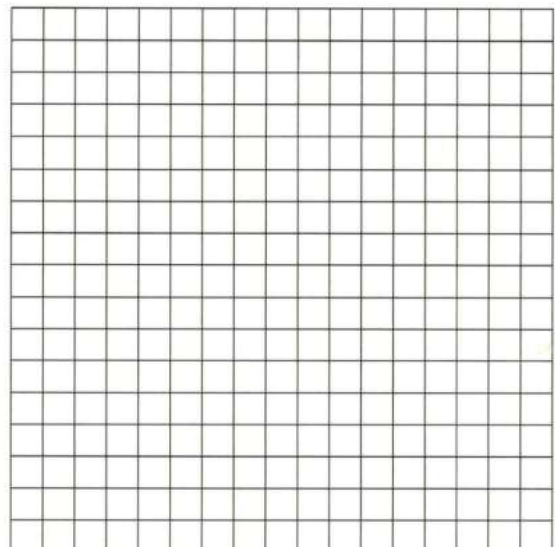
a. Use the above data to complete the following graph :



Marwan made a table to show the marks for his team , the Goldenrods , and the opposing team in the first three exams. What type of graph would be most appropriate for Marwan to use to display these data ? Explain.

Marks Scored in Each Exam			
Team	Exam 1	Exam 2	Exam 3
Goldenrods	$30\frac{1}{2}$	$31\frac{1}{4}$	$31\frac{1}{2}$
Opponents	$32\frac{1}{4}$	$30\frac{1}{2}$	$31\frac{1}{4}$

Represent these data by this type of graph.



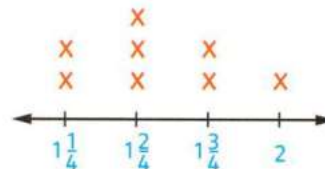


Unit (11) Assessment

[1] Choose the correct answer:

- a. Which of the following can be represented by a line plot ?
- A. Our favorite sports. B. Our favorite colors.
C. Our weights. D. Our favorite food.
- b. Which of the following can be represented by a double bar graph ?
- A. Favorite animal. B. Marks of friends in Math .
C. Marks of friends in Math and Arabic . D. Our heights.
- c. To represent the number of walking hours for Ahmed and Hassan in one week you can use _____
- A. line plot. B. pictograph. C. double bar graph. D. bar graph.
- d. Maged collected some data about the favorite pet of his friends. Which kind of representing data is the best ?
- A. Line plot. B. Double bar graph. C. Bar graph.
- e. In the opposite figure, the number which is the most repeated is _____

- A. 1 B. $1\frac{3}{4}$
C. $1\frac{2}{4}$ D. $1\frac{1}{4}$



- f. Which type of graph is suitable for these data ?

- A. Line plot B. Bar graph
C. Double bar D. Otherwise

Name	Ahmed	Nora	Ola	Ali
Age	13	17	15	10

- g. Which type of graph is suitable for these data ?

Subject	Math	English	Arabic	Science	Art
Hany	20	19	15	18	17
Mona	17	20	19	20	15

- A. Double bar graph. B. Line plot. C. Bar graph. D. pictograph.





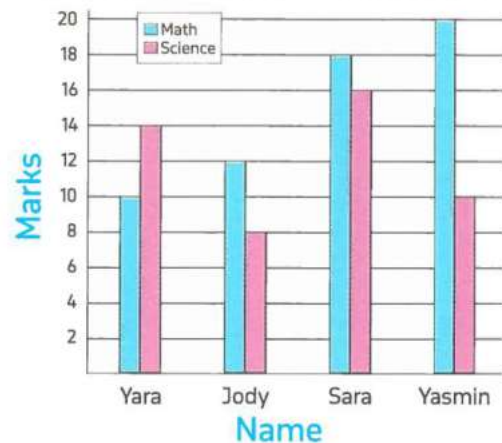
[2] Complete:

- The opposite graph shows the marks of four students in Math and Science tests.

Complete from (a) to (d).

- The student who got the highest mark in Math is _____
- The difference between the Math mark and Science mark of Yasmin is _____
- The student who got the lowest mark in Science is _____
- The total marks of Math and Science of Sara is _____

Markes of Math and Science tests



- The opposite table represent the favorite color of some students.

Complete from (e) to (h).

- The most favorite color is _____
- The total number of students is _____
- The number of students who liked red and yellow is _____
- The difference between the number of students who liked green and white is _____

The favorite color

Color	Number
Red	12
Yellow	18
Black	4
White	11
Green	9



[3] Choose the correct answer:

- Which type of graph is suitable to represent these data ?

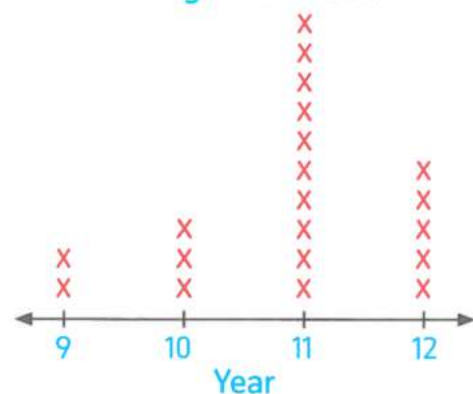
Number of hours	0	1	2	3	4	5
Number of students	2	4	10	11	3	1

- A. Double bar graph. B. Line plot. C. Pictograph.

- In the opposite line plot, if it represents the ages of 40 students in grade 4, then each X stands for _____ student[s].

- A. one B. two
C. three D. four

The age of students





c. Which type of graph is suitable to represent these data ?

- A. Double bar graph.
- B. Line plot.
- C. Bar graph.

1	3	2	5	1	4
3	2	4	1	3	1
2	1	3	4	1	5

d. From the opposite table the value of X is _____

- A. 6
- B. 7
- C. 8
- D. 9

Books Readers	
Name	Number
Amgad	4
Ola	5
Nora	10
Alaa	X
Noha	2
Total	30

e. The football coach scored the following numbers of goals in the last twenty matches.

3 , 0 , 1 , 5 , 4 , 3 , 2 , 6 , 4 , 2 , 3 , 3 , 0 , 7 , 1 , 1 , 2 , 3 , 4 , 3

Which number had the highest frequency ?

- A. 3
- B. 5
- C. 6
- D. 7

f. Which type of graph is suitable to represent these data ?

- A. Double bar graph.
- B. Line plot.
- C. Bar graph.

Test Evaluation	
Evaluation	Total
Excellent	2
V.good	8
Good	6
Pass	4

g. From the opposite table, the value of X is _____

- A. 6
- B. 4
- C. 5
- D. 6

Subject Marks	
Subject	Number
Math	X
English	13
Arabic	15
Science	11
Music	6
Total	50





[4] Answer the following:

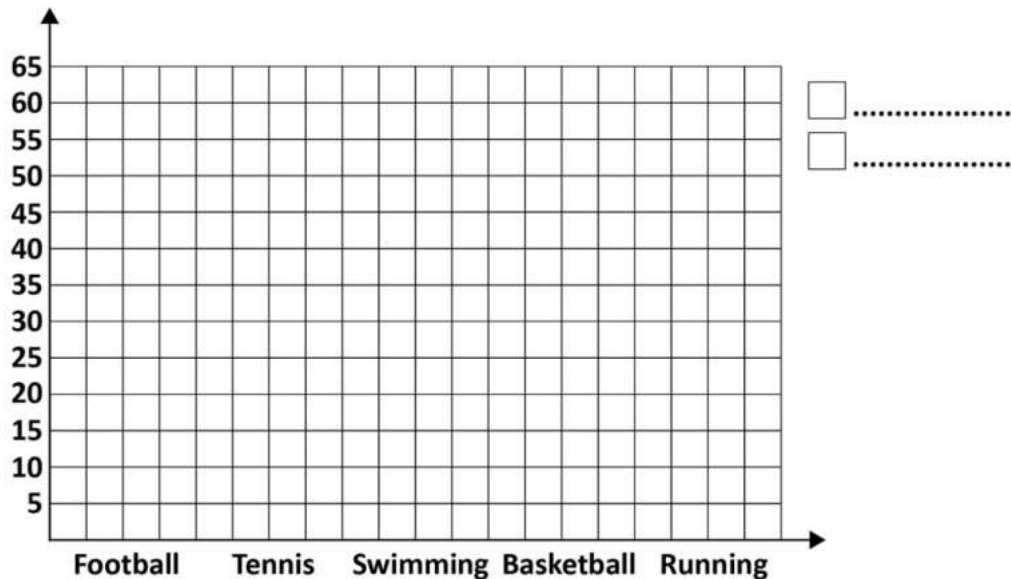
a. Use the following data to make a line plot.

$5\frac{1}{2}$	$3\frac{1}{2}$	$6\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$
4	3	5	$5\frac{1}{2}$	$3\frac{1}{2}$	4	6	6	4	5



The following table represents the sports played by a number of boys and girls:

Sport	Football	Tennis	Swimming	Basketball	Running
No. of boys	60	20	30	45	40
No. of girls	10	30	40	15	40



- A** What sport do the largest number of boys play?
- B** What sport do the least number of boys play?
- C** What is the sport in which the number of boys and the number of girls are equal?
- D** How many students prefer swimming?
- E** How many more girls than boys prefer running?



UNIT

12

Theme 4 | Applications of Geometry
and Measurement

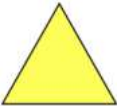
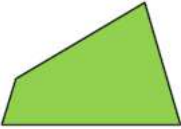
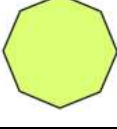
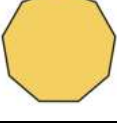
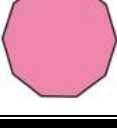
Unit 12 Geometry





Concept (1): Geometric Concepts

Polygons

The Polygon	Name	Number of sides	Number of vertices
	Triangle		
	Quadrilateral		
	Pentagon		
	Hexagon		
	Heptagon		
	Octagon		
	Nonagon		
	Decagon		

Note: For any polygon:

Number of sides = Number of vertices





Lesson (1)

Points, Lines, Line Segments, and Rays

Match:

	ray YZ	$\overrightarrow{YZ}$
	ray BC	$\overrightarrow{BC}$
	line BC	$\overleftrightarrow{BC}$
	line YZ	$\overleftrightarrow{YZ}$
	line segment BC	$\overline{BC}$
	line segment YZ	$\overline{YZ}$



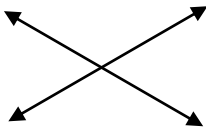
Lesson (2)

The Relation between Two Lines

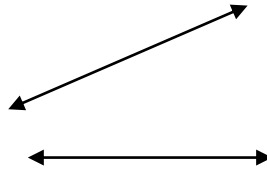
Perpendicular Lines (Orthogonal lines)	Parallel Lines	Intersecting Lines
1. Intersect at 1 point. 2. $\overline{AB} \perp \overline{CD}$ or $\overline{CD} \perp \overline{AB}$.	1. $\overline{AB} \parallel \overline{CD}$ or $\overline{CD} \parallel \overline{AB}$. 2. Intersect at 0 points 3. Never intersecting.	1. Intersect at 1 point. 2. M is the intersection point



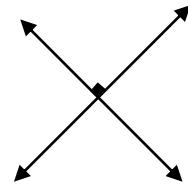
Write (parallel, perpendicular or intersecting) to describe each two straight lines:



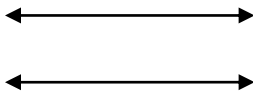
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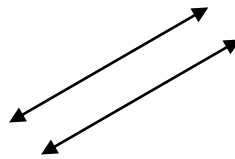
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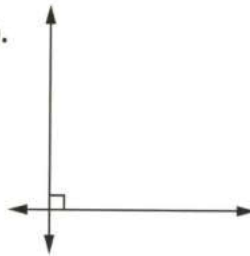


Write the name of each pair of lines "parallel, intersecting or perpendicular".

a.



b.



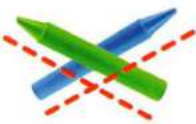
c.





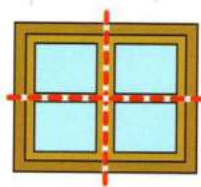
Choose the name for each pair of lines.

a.



Parallel
Intersecting

b.



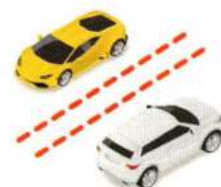
Parallel
Perpendicular

c.



Intersecting
Perpendicular

d.

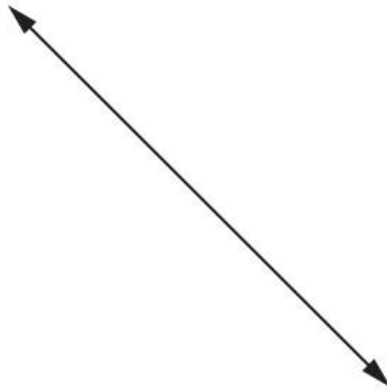


Parallel
Intersecting





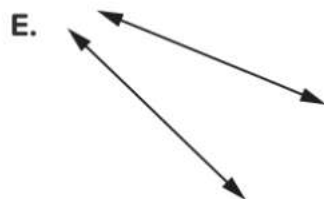
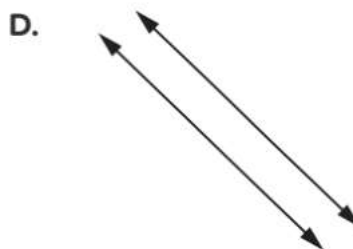
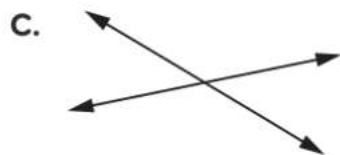
2. What is the name of this object?



- A. Point
- B. Line
- C. Line segment
- D. Ray



3. Which of these show intersecting lines? Select *two* correct answers.





Homework

Draw a line to match the name to the picture. Some pictures do not have a match. Label pictures that do not have a match (for example, line segment ST or TS).


LM




LM




LM




QR




QR




QR





Choose the correct answer:

1. The opposite figure is named as _____



- A. $\overleftrightarrow{AB}$ B. $\overleftrightarrow{BA}$
C. $\overline{AB}$ D. $\overline{BA}$

2. The name of _____ is _____

- A. a line. B. an angle.
C. a ray. D. a straight.

3. A/An _____ is a part of a line and has two endpoints. _____

- A. A point B. A line segment
C. An angle D. A straight line

4. The shape that shows a ray is _____

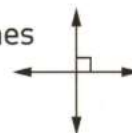
- A. _____ B. 
C.  D. 

5. The opposite lines are _____



- A. perpendicular. B. intersecting.
C. parallel. D. obtuse.

6. The opposite two lines are _____

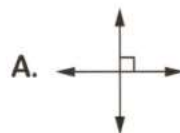


- A. perpendicular.
B. parallel.
C. intersecting and not perpendicular.
D. not intersecting.

7. Which of the following figures shows two parallel lines ?



8. Which of the following figures shows two perpendicular lines ?



9. The opposite figure is named as _____

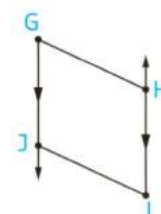


- A. $\overleftrightarrow{AB}$ B. $\overleftrightarrow{AB}$
C. $\overline{AB}$ D. $\overline{BA}$

10. In the opposite figure :

The pair of parallel line segments are _____

- A. $\overline{GH}$ and $\overline{GJ}$
B. $\overline{GJ}$ and $\overline{IH}$
C. $\overline{IH}$ and $\overline{HG}$
D. $\overline{IJ}$ and $\overline{GJ}$





Complete:

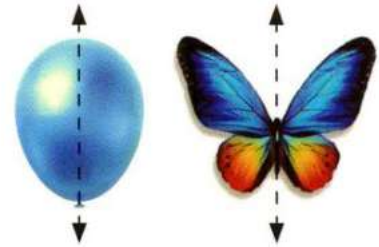
- a. The two lines  are _____
- b. The two lines  are _____
- c. The two perpendicular straight lines make _____ square corners.
- d. The two _____ lines cannot intersecting.
- e. All perpendicular lines are also _____



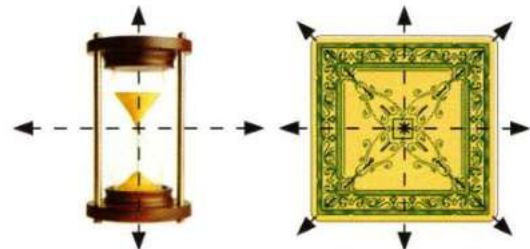
Lesson (3)

Symmetry

- These figures appear to have a line of symmetry.



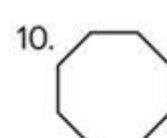
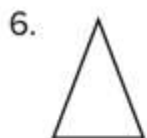
- Some figures appear to have more than one line of symmetry.



Does each figure appear to have a line of symmetry? Write yes or no.

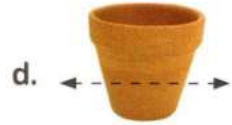
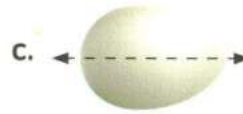
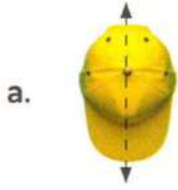


For Problems 6–10, look at each shape. Draw one line of symmetry for each one.
(Hint: One shape has more than one line of symmetry.)





Does each line appear to be a line of symmetry? Write yes or no.

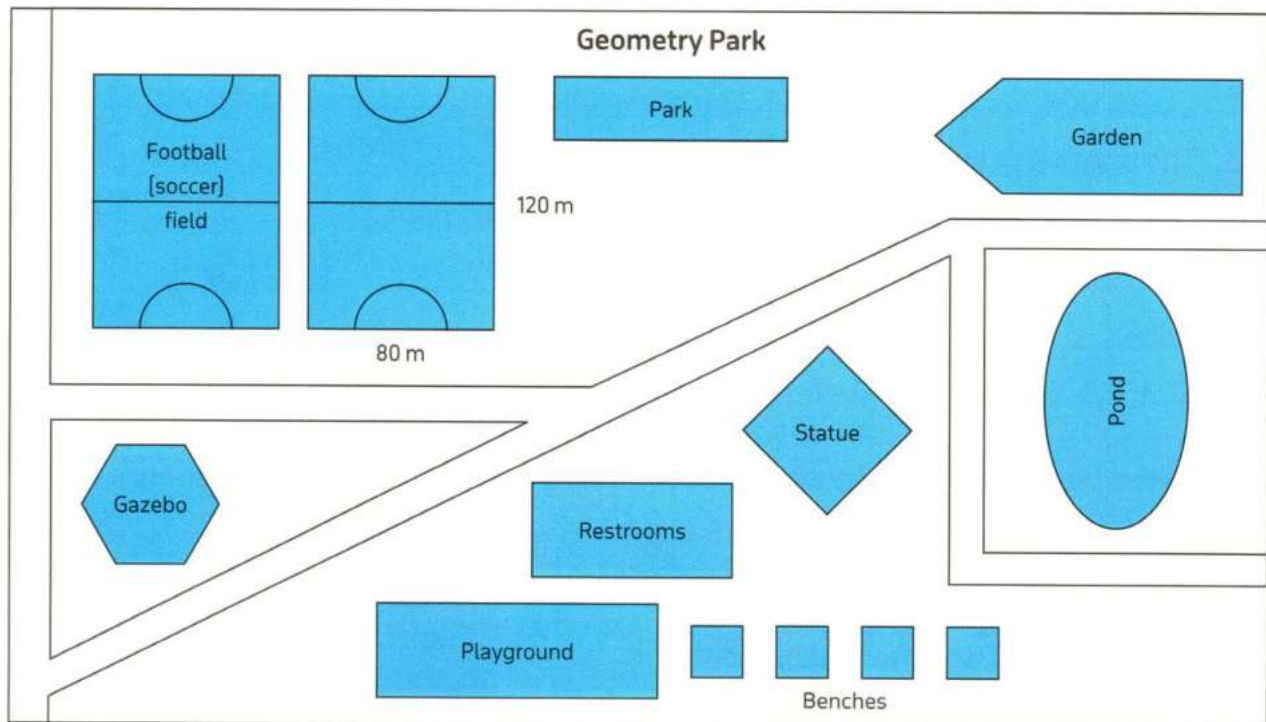


Lesson (4)

Real-World Geometry

Look at the following picture of the park and then follow the directions.

- Color two perpendicular lines blue.
- What shape are the restrooms?
- Color two parallel lines green.
- How many quadrilaterals are in the park?
- Color two intersecting lines red.
- Circle and label three different two-dimensional shapes.
- Draw at least one line of symmetry on the garden, the gazebo and the statue.

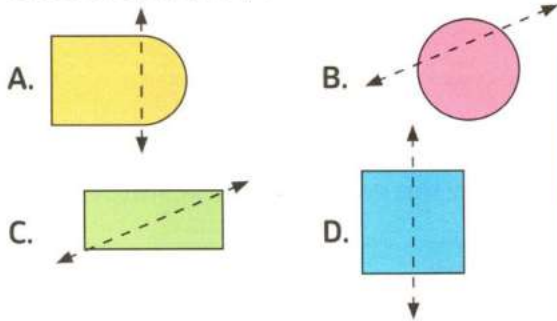




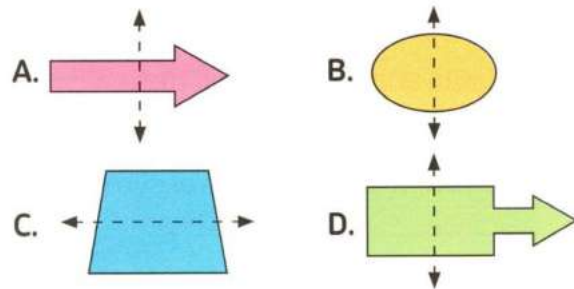
Homework

Choose the correct answer:

1. Which of the following shows a line of symmetry?



2. Which of the following figures shows a line of symmetry?



3. The number of lines of symmetry that can be drawn in the opposite figure is _____

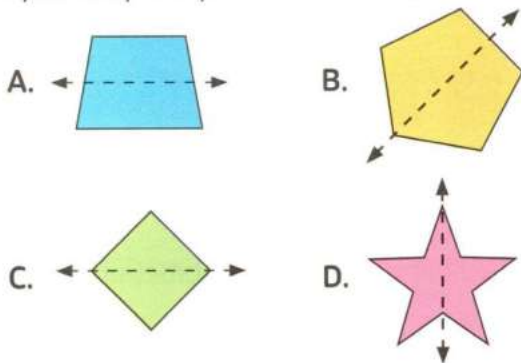


- A. 4
B. 3
C. 1
D. 2

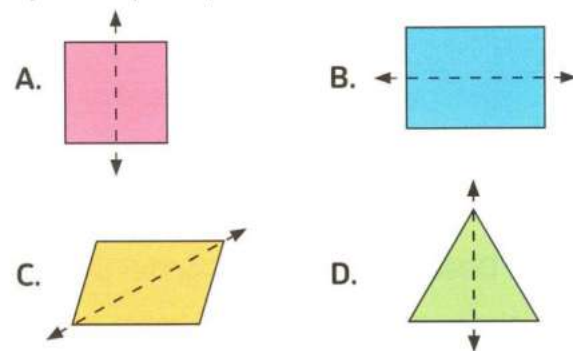
4.  has _____ line[s] of symmetry.

- A. 2
B. 0
C. 4
D. 1

5. All the following figures show a line of symmetry except _____



6. All the following figures show a line of symmetry except _____



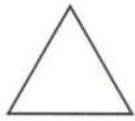
7. All the following figures has a line of symmetry except _____
has more than one line of symmetry.





1. Does each figure appear to have a line of symmetry? Write yes or no.

a.



b.



c.



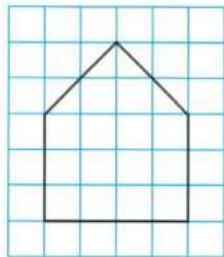
d.



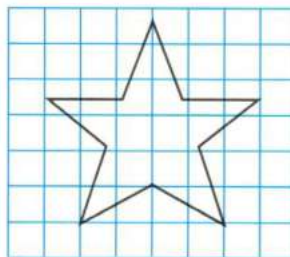


2. Draw a line of symmetry for each.

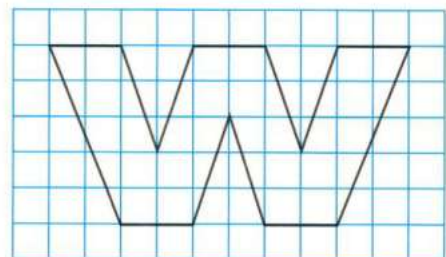
a.



b.

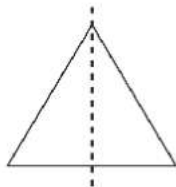


c.

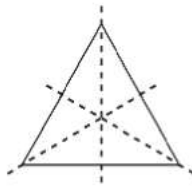


Select the answer choice that shows all the lines of symmetry in the figure.

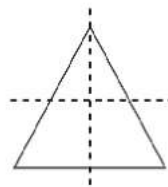
A.



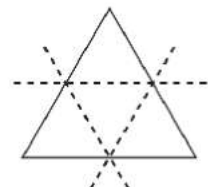
B.



C.



D.

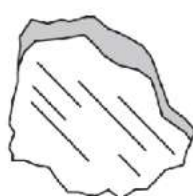


Which objects are symmetrical? Select *three* correct answers.

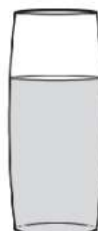
A.



B.



C.



D.



E.



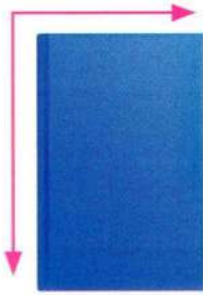


Concept (2): Classifying Shapes

Lesson (5)

Classifying Angles

Right angle



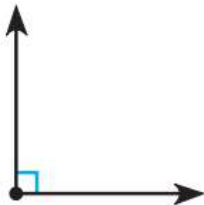
Acute angle



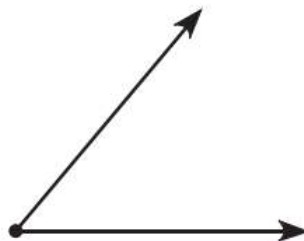
Obtuse angle



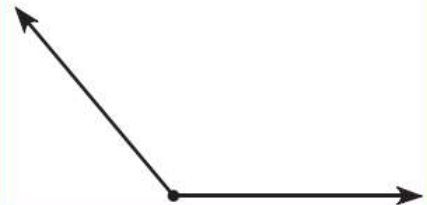
A **right angle** forms a square corner.



An **acute angle** is less than a right angle.



An **obtuse angle** is greater than a right angle and less than a straight angle.

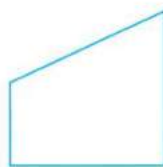


Circle all the right angles in the following figures.

a.



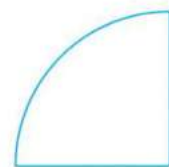
b.



c.

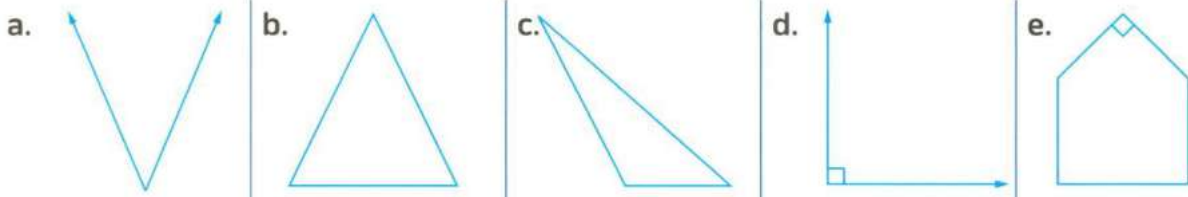


d.

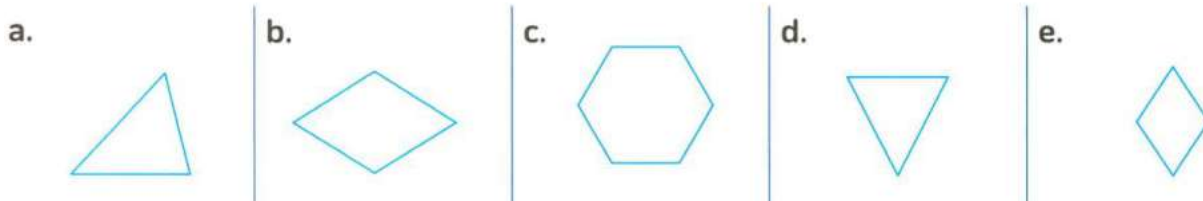




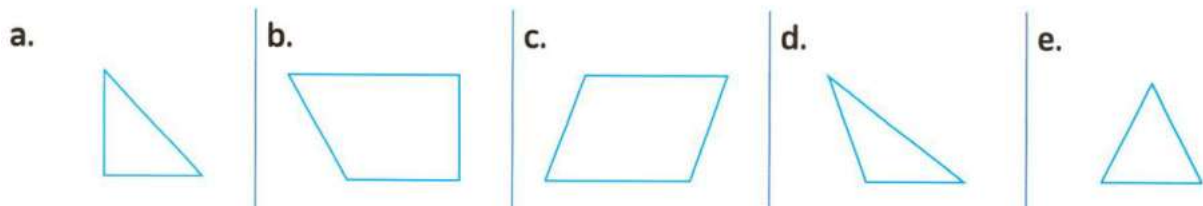
Circle the acute angles "less than right angle" in each of the following figures.



Circle the geometric figure that contains an acute angle.



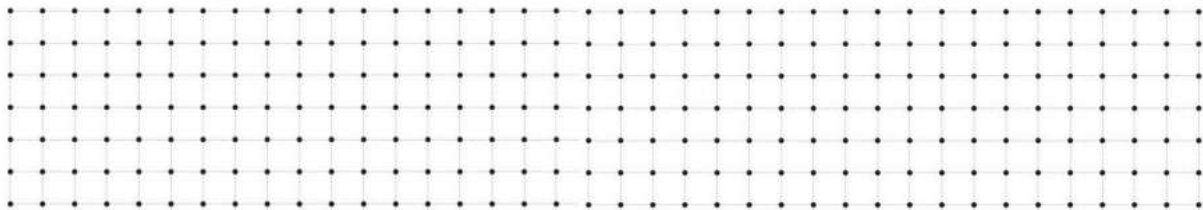
Circle the geometric figure that contains an obtuse angle.



Lesson (6)

Drawing Angles

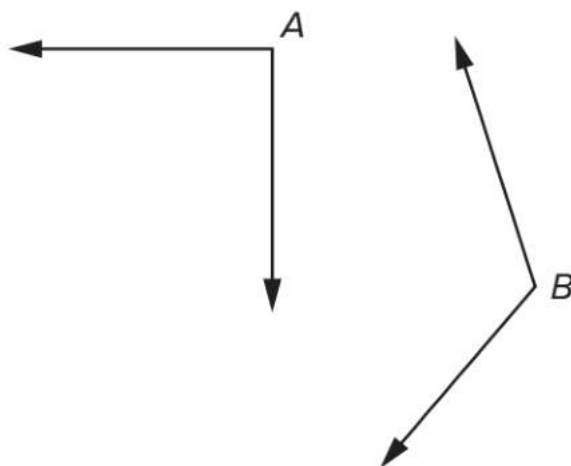
Draw and label a right angle, an acute angle and an obtuse angle.





Homework

Fill in the blanks below with the correct answer choice from each group.
Angle A is a right angle. Is angle B greater than, equal to, or less than a right angle?



greater than

equal to

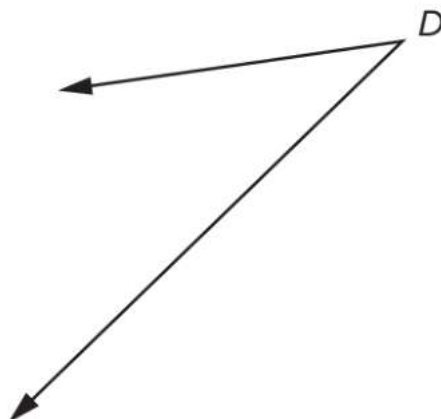
less than

Angle B is _____ a right angle.



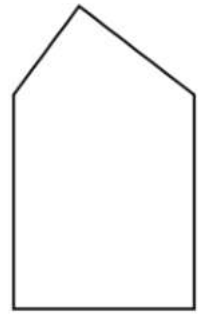
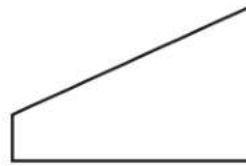
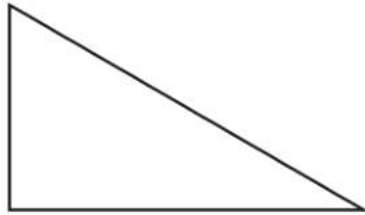
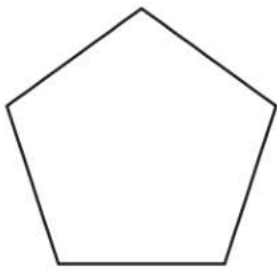
What type of angle is angle D ?

- A. acute
- B. right
- C. obtuse
- D. straight

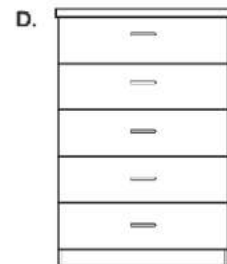
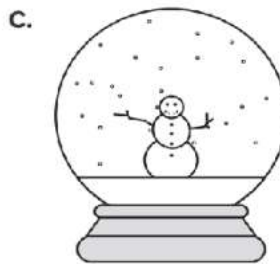
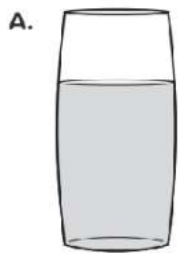




Circle the shapes that contain acute angles.

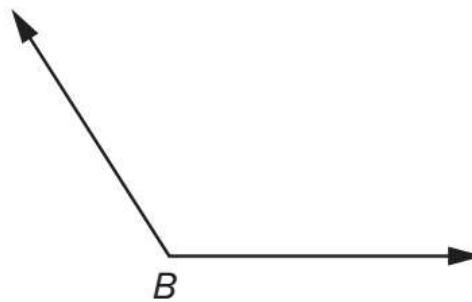
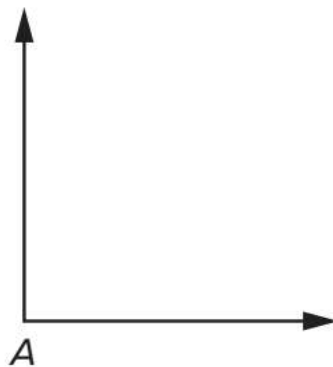


Which object has a right angle?



Fill in the blank below with the correct answer choice.

Angle *A* is a right angle. Is angle *B* greater than, equal to, or less than a right angle?



Angle *B* is _____ a right angle.

greater than

equal to

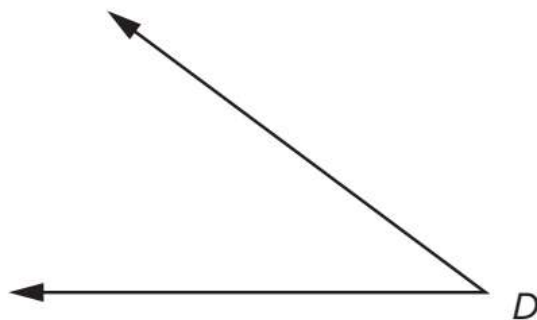
less than





Fill in the blank below with the correct answer choice.

What type of angle is angle D ?



Angle D is a(an) _____ angle.

right

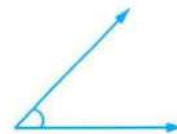
obtuse

acute

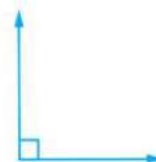


Complete:

a. The opposite angle represents _____ angle.



b. The opposite angle is _____ angle.



c. The opposite angle is _____ angle.



d. An _____ angle less than a right angle.

e. An _____ angle more than a right angle.

f. How many acute angles are there in the figure ?



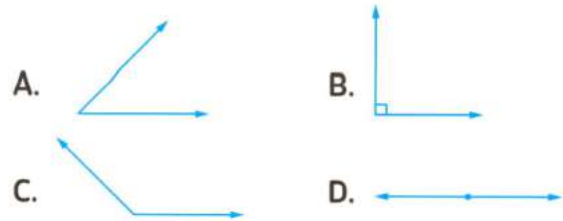


Choose the correct answer:

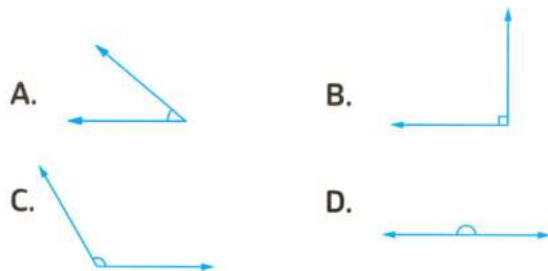
1. _____ is formed by two rays that share an endpoint.

- A. A point B. A line segment
C. An angle D. A ray

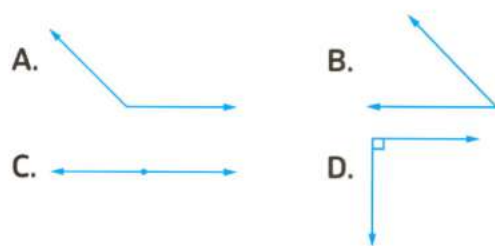
2. From the following, the acute angle is figure _____



3. Which figure shows a right angle ?



4. The figure that shows an obtuse angle is _____

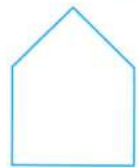


5. The opposite figure is represents _____ angle.

- A. an acute B. an obtuse
C. a right D. a straight

6. The number of the right angles in the opposite figure is _____

- A. 1 B. 2
C. 3 D. 4



7. How many obtuse angles are there in the opposite figure ?

- A. 0 B. 1
C. 2 D. 3



8. The measure of the acute angle  the measure of the right angle.

- A. > B. < C. =

9. The measure of the acute angle  the measure of the obtuse angle.

- A. < B. >
C. = D. otherwise

10. Which angle that is smaller than the right angle ?

- A. an acute angle. B. a right angle.
C. an obtuse angle. D. a straight line.

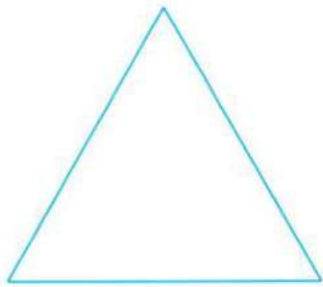




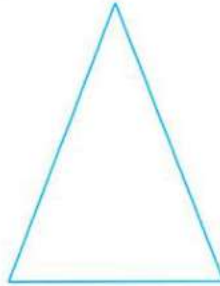
Lesson (7)

Classifying Triangles

Triangles can be classified by the lengths of their sides.

**Equilateral triangle**

All sides are the same length.

**Isosceles triangle**

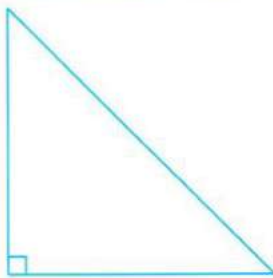
At least two sides are the same length.

**Scalene triangle**

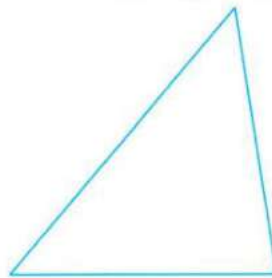
No sides are the same length.



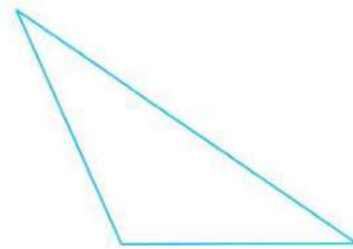
You can also classify triangles by the sizes of their angles.

**Right triangle**

One angle is a right angle and the other two angles are acute.

**Acute triangle**

All three angles are acute angles.

**Obtuse triangle**

One angle is an obtuse angle and the other two angles are acute.

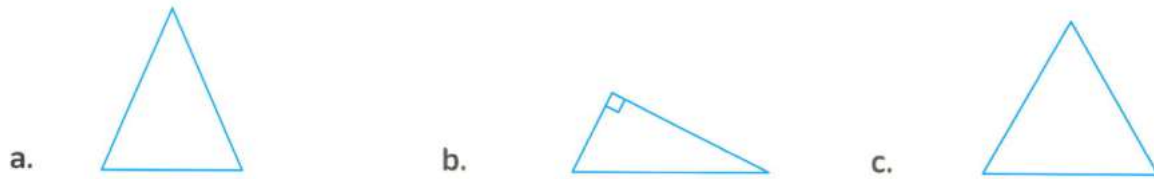
Remarks

- (1) Any triangle has at least two acute angles.
- (2) We can't find two right angles in one triangle.
- (3) We can't find two obtuse angles in one triangle.

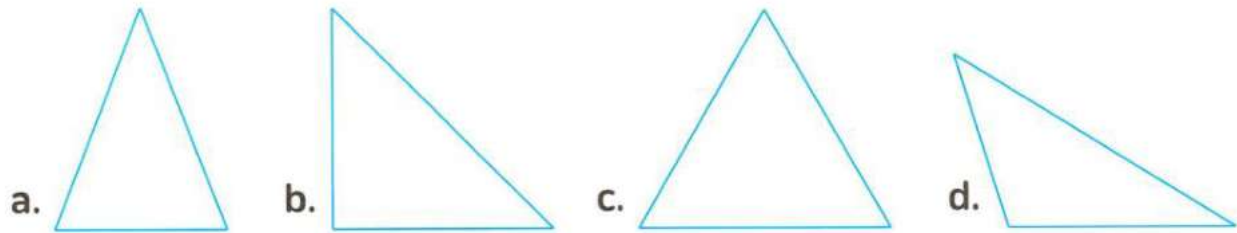




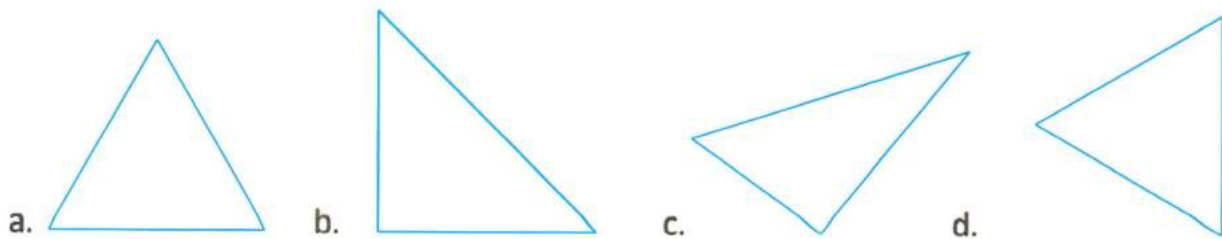
Classify each triangle by its sides and then by its angles.



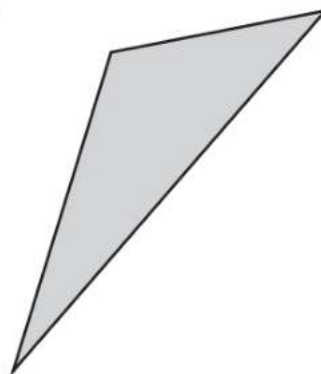
Name each triangle. Write right, obtuse or acute.



Name each triangle. Write equilateral, isosceles or scalene.



What type of triangle is shown?



- A. Right triangle
- B. Acute triangle
- C. Obtuse triangle
- D. Equiangular triangle



**Lesson (8)****Drawing Triangles**

Building Triangles Work with your partner to use straws to create the triangles. Draw your triangles in the space provided.

1. Build an equilateral triangle.
2. Build a triangle with all acute angles.
3. Build a triangle with an obtuse angle.
4. Build a scalene triangle.
5. Build a right triangle.





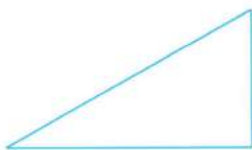
6. Build an isosceles triangle.
7. Build an isosceles triangle with a right angle.
8. Build a scalene triangle with an obtuse angle.



Homework

1. Classify each triangle as equilateral, isosceles or scalene.

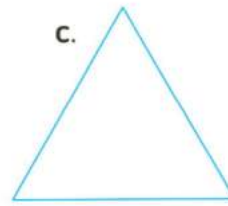
a.



b.



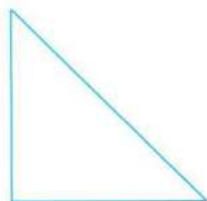
c.



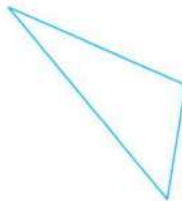


2. Classify each triangle as acute, right, or obtuse.

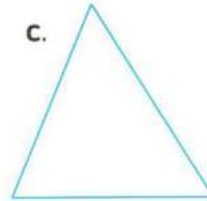
a.



b.



c.







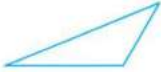
Choose the correct answer:

1. The triangle  is _____ triangle.

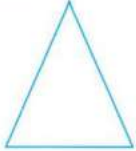
- A. acute B. right
C. obtuse

2. The opposite triangle is _____ angled triangle. 

- A. an acute B. an obtuse
C. a right D. an equilateral

3. The opposite triangle is _____ triangle. 

- A. a right B. an acute
C. an obtuse D. an equilateral

4. The opposite triangle is _____ triangle. 

- A. right B. acute
C. obtuse D. scalene

5. Which of the following triangles is isosceles triangle ?

- A.  B. 
C.  D. 

6. The equilateral triangle has _____ equal side[s].

- A. 0 B. 1
C. 2 D. 3

7. The isosceles triangle has _____ equal side[s].

- A. 0 B. 1
C. 2 D. 3

8. The scalene triangle has _____ equal side[s].

- A. 0 B. 1
C. 2 D. 3

9. The triangle has different sides is called _____

- A. isosceles B. scalene
C. equilateral D. otherwise

10. _____ triangle has 3 equal sides.

- A. Scalene B. Isosceles
C. Equilateral D. Right

11. The opposite triangle has _____ right angle[s]. 

- A. 1 B. 2
C. 3 D. 4

12. The triangle of side length of 5 cm, 6 cm, 7 cm is called _____ triangle.

- A. equilateral B. isosceles
C. scalene D. otherwise

13. Any triangle has at least _____ acute angle[s].

- A. 3 B. 1
C. 2 D. 4

14. The classification of the opposite triangle by its sides and angles is _____ triangle. 

- A. equilateral, right B. isosceles, acute
C. scalene, right D. equilateral, acute





Lesson (9)

Classifying Quadrilaterals

Common Quadrilaterals

**Trapezoid**

- 1 pair of parallel sides

**Parallelogram**

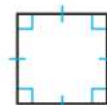
- 2 pairs of parallel sides
- 2 pairs of sides of equal length

**Rhombus**

- 2 pairs of parallel sides
- 4 sides of equal length

**Rectangle**

- 2 pairs of parallel sides
- 2 pairs of sides of equal length
- 4 right angles

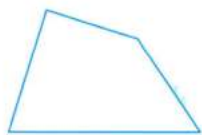
**Square**

- 2 pairs of parallel sides
- 4 sides of equal length
- 4 right angles



Write the name that best describes each figure.

a.



b.



c.



d.



e.

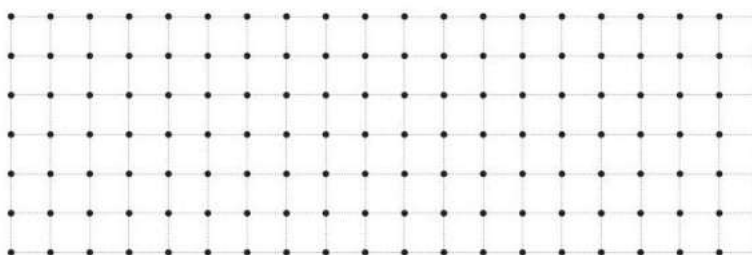
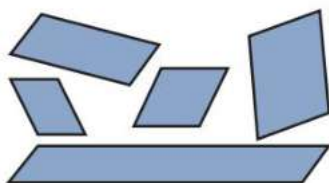


f.



Naming Quadrilaterals Write the name of each quadrilateral. Count how many pairs of parallel sides the shape has and classify the angles. Draw at least one example of each quadrilateral using the dot grid.

1.



Name: _____

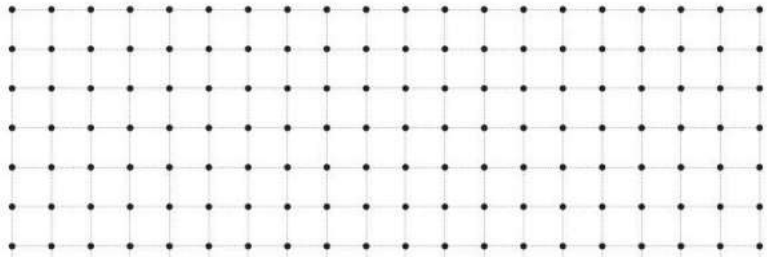
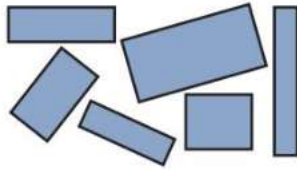
Parallel Sides: _____

Angles: _____





2.

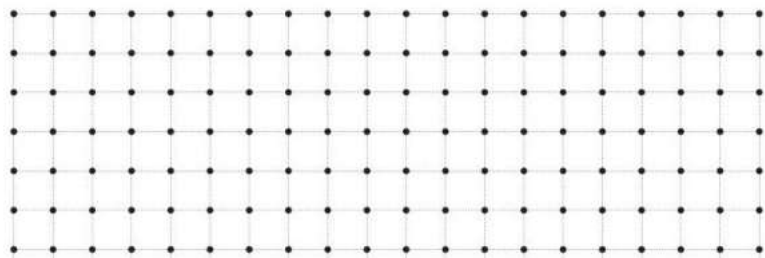
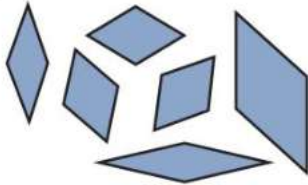


Name: _____

Parallel Sides: _____

Angles: _____

3.

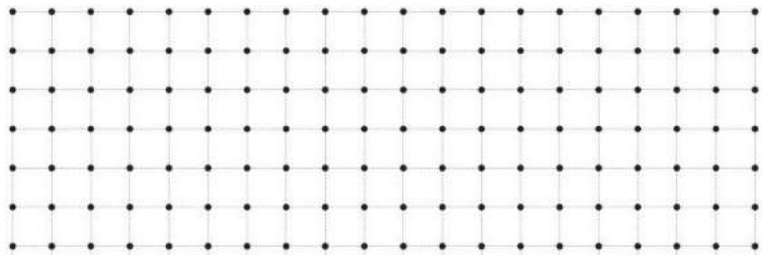
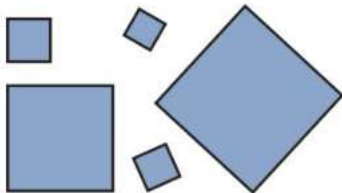


Name: _____

Parallel Sides: _____

Angles: _____

4.



Name: _____

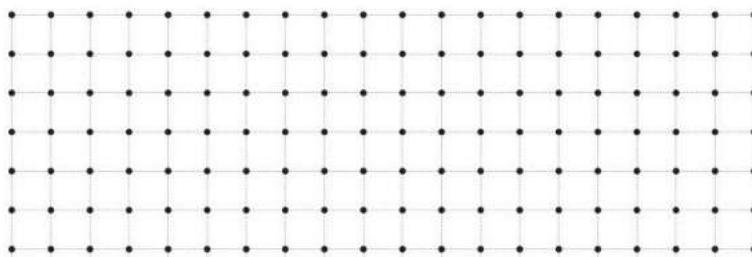
Parallel Sides: _____

Angles: _____





5.



Name: _____

Parallel Sides: _____

Angles: _____

**Complete:**

- The square has _____ right angles.
- The rectangle has _____ right angles.
- The _____ has only one pair of a parallel sides.
- The quadrilateral that has 4 equal sides and 4 right angles is called _____.
- A _____ is a rectangle with 4 equal sides.
- A quadrilateral is any polygon with _____ sides.
- A rhombus is a parallelogram with four equal _____.
- A _____ is a parallelogram with four equal sides, two acute angles and two obtuse angles.

**Choose the correct answer:**

- | | |
|---|--|
| <p>1. The quadrilateral that has equal sides with 4 right angles is a _____</p> <p>A. rectangle. B. square.</p> <p>C. trapezium. D. rhombus.</p> | <p>2. A square has _____</p> <p>A. 2 acute angles. B. 2 obtuse angles.</p> <p>C. 4 right angles.</p> <p>D. 4 different angles.</p> |
| <p>3. A parallelogram has _____</p> <p>A. 4 right angles. B. 4 equal sides.</p> <p>C. 1 pair of parallel sides.</p> <p>D. 2 pairs of parallel sides.</p> | <p>4. The rectangle has _____ right angle[s].</p> <p>A. 2 B. 3</p> <p>C. 4 D. 1</p> |





Unit (12) Assessment

[1] Choose the correct answer:

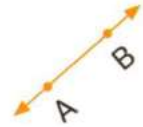
1. The opposite figure is named as _____

A. $\overleftrightarrow{AB}$

B. $\overline{AB}$

C. $\overrightarrow{BA}$

D. $\overline{AB}$



2. _____ is a polygon with six sides.

A. Triangle

B. Pentagon

C. Hexagon

D. Quadrilateral

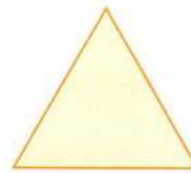
3. The classification of the opposite triangle, is _____

A. isosceles, obtuse

B. isosceles, acute

C. equilateral, acute

D. scalene, acute



4. A _____ is a parallelogram with all sides are the same length.

A. parallelogram

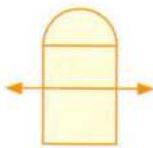
B. rectangle

C. trapezium

D. rhombus

5. Which of the following figures shows a line of symmetry?

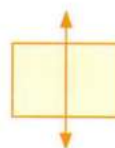
A.



B.



C.



D.



6. The opposite lines show _____

A. parallel lines

C. perpendicular lines

B. intersecting lines

D. not intersecting lines



7. Which figure shows a right angle?

A.



B.



C.



D.





[2] Complete:

1.  is named as _____

2. How many right angles are there in the opposite figure?



3. Number of lines of symmetry of the figure = _____



4. The two lines that will never intersect are called _____



5. _____ is formed by two rays that have the same endpoint.



[3] Choose the correct answer:

1. A _____ has a vary measuring angles with only one pair of parallel sides.

- A. parallelogram B. rhombus C. square D. trapezium

2. Which of the following figures shows $\overleftrightarrow{CD}$?



3. The equilateral triangle has _____ equal side[s].

- A. 0 B. 1 C. 2 D. 3

4. The opposite two lines are _____

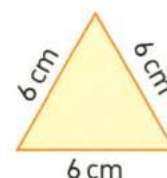
- A. parallel B. not intersecting
C. perpendicular D. intersecting and not perpendicular



[4] Answer the following:

1. Hany is making a design using a quadrilateral that has four equal sides and four same-sized angles. What shape is Hany using? Draw the design. _____

2. a. The type of the opposite triangle according to its angles is _____
b. The perimeter of triangle = _____ cm.





UNIT

13

Theme 4 | Applications of Geometry
and Measurement

Unit 13 Angles of a Circle





Concept (1)

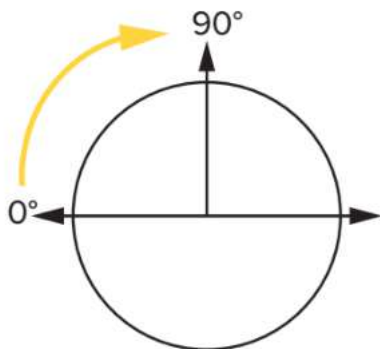
Breaking the Circle into Angles

Lesson (1)

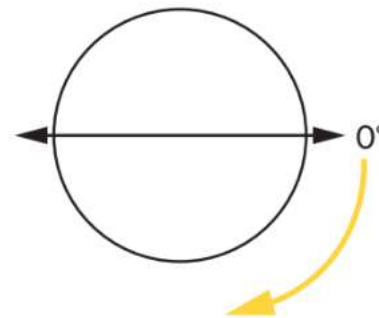
The Circle and the Degrees

Circles and Angles Move from 0° in the given direction and draw a right angle. Then, label 90° and 180° degrees on each circle. Compare your work with your Shoulder Partner's work.

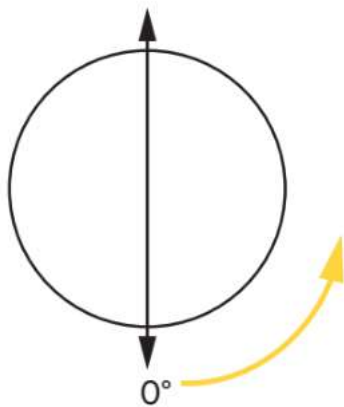
1. Label 180° .



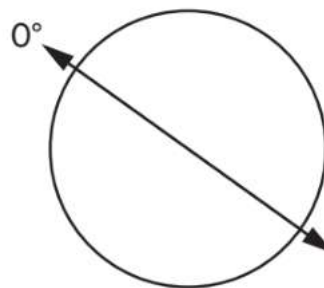
2. Move clockwise from 0° .



3. Move counterclockwise from 0° .



4. Move clockwise from 0° .





Classify each marked angle of the following.

a.



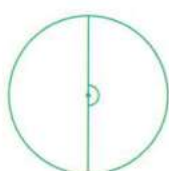
b.



c.



d.



e.



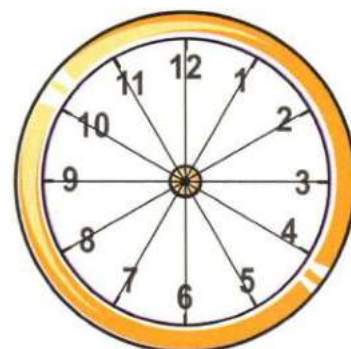
f.



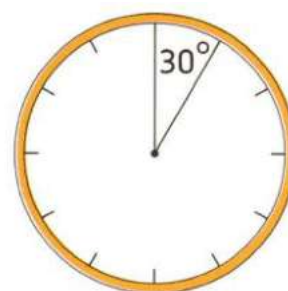
Lesson (2)

Measuring Angles Using a Circle Model

- The model at the right has been divided into 12 equal angles. As the measure of the circle is 360° , then the measure of each angle equals $\frac{1}{12}$ of the circle



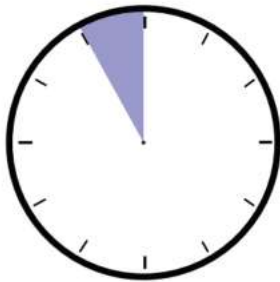
- The measure of one angle = $\frac{1}{12} \times 360^\circ$
 $= 360^\circ \div 12 = 30^\circ$



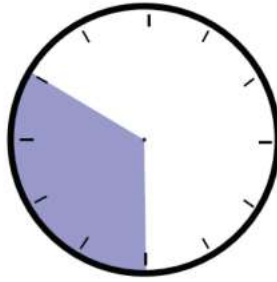


Fractions and Angles on a Clock Write the fraction of the clock shaded and how many degrees of the clock that fraction represents.

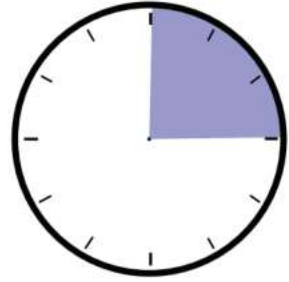
1.



2.

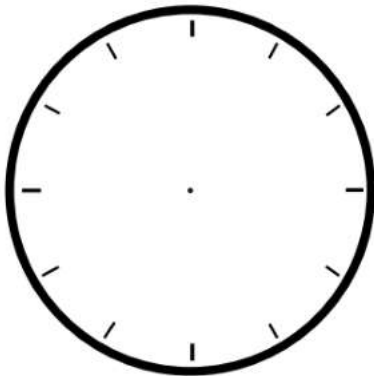


3.

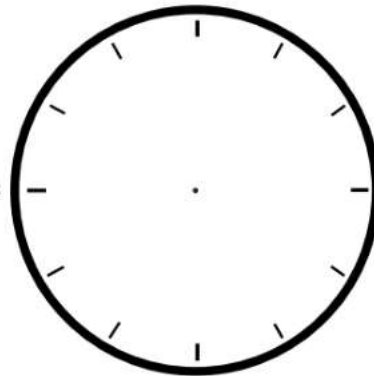


Use the blank clock faces and what you know about benchmark angles to write the missing angle measurements.

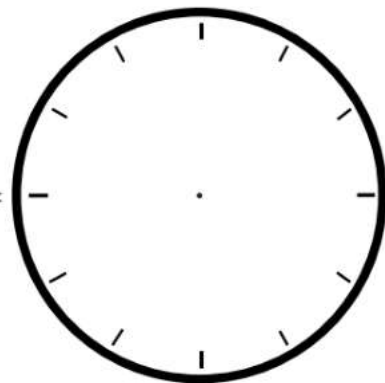
4. $\frac{2}{12} =$



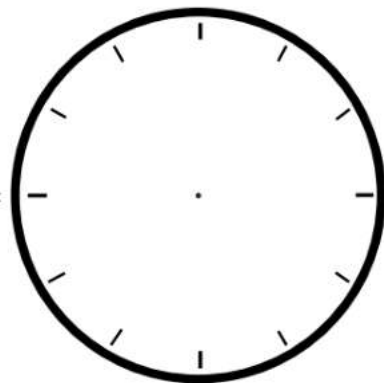
5. $\frac{3}{4} =$



6. $\frac{2}{3} =$



7. $\frac{6}{12} =$

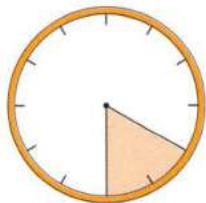




Homework

Write the fraction of the model colored and how many degrees of the model that fraction represents.

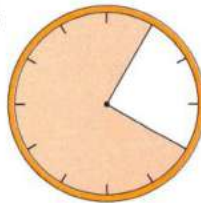
a.



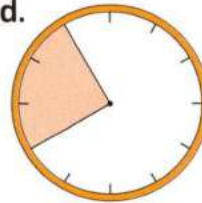
b.



c.

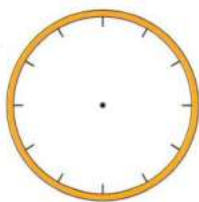


d.



Use the blank model and what you know about benchmark angles to write the missing angle measurements in degrees.

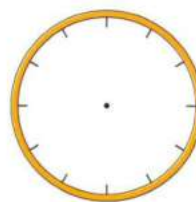
a. $\frac{6}{12}$



b. $\frac{1}{6}$



c. $\frac{3}{4}$





Write the measure of colored angles in degrees.

a.



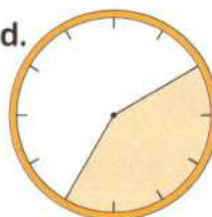
b.



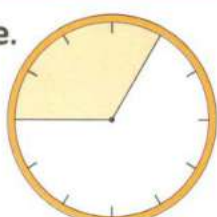
c.



d.

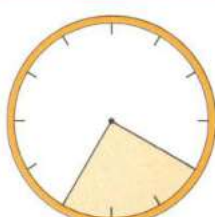


e.



[180 - 90]

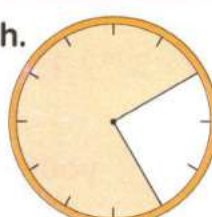
f.



g.



h.



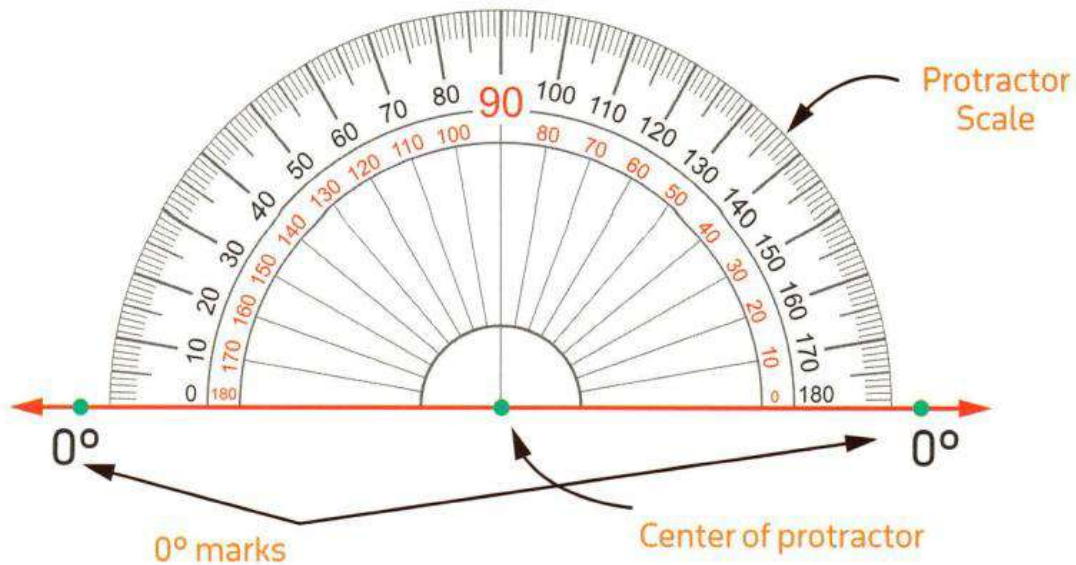


Concept (2)

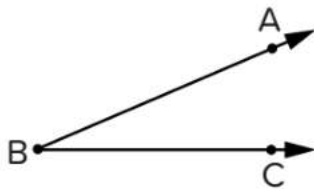
Measuring and Drawing Angles

Lesson (3)

Using Protractor



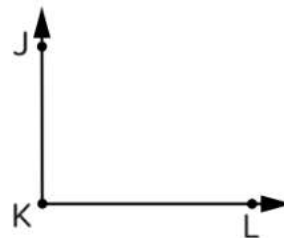
Write three different names for each angle.



Name 1 _____

Name 2 _____

Name 3 _____



Name 1 _____

Name 2 _____

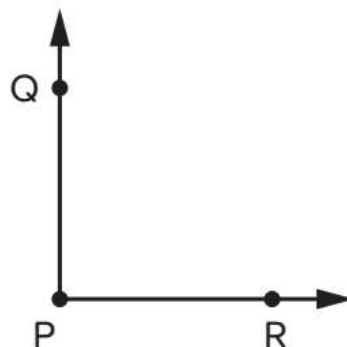
Name 3 _____





Which *three* choices are acceptable names for the angle shown?

Consider the angle.



A. $\angle PQR$

C. $\angle RPQ$

E. $\angle Q$

B. $\angle QPR$

D. $\angle P$

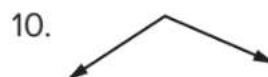
F. $\angle R$



Lesson (4)

Measuring Angles

Classifying Angles Classify each angle as acute, obtuse, right, or straight.



Acute:,,

Right:,

Obtuse:,,

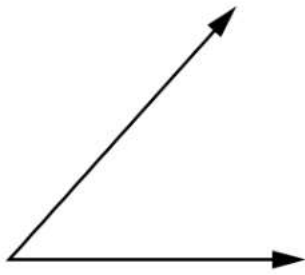
Straight:,



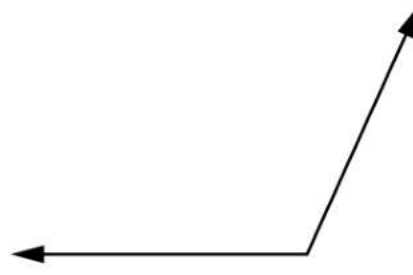


Measurement Practice

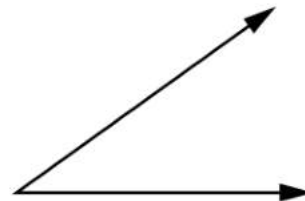
1.



2.



3.



4.



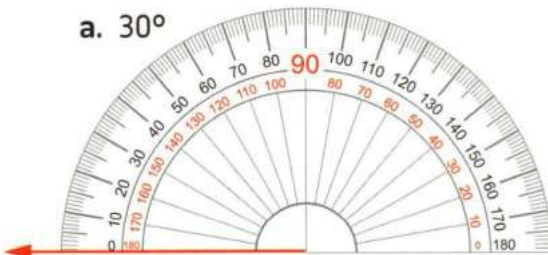


Lesson (5)

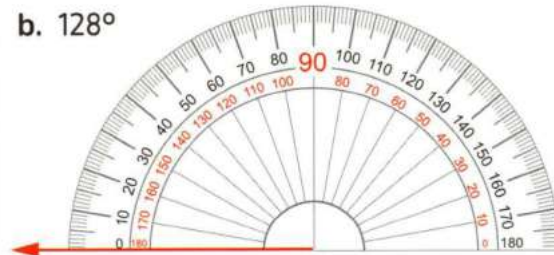
Drawing Angles

Mark each given angle on the protractor.

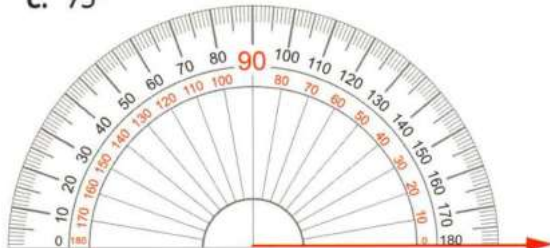
a. 30°



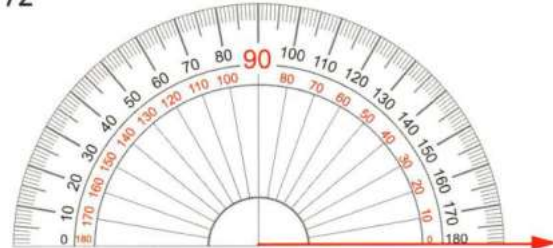
b. 128°



c. 95°



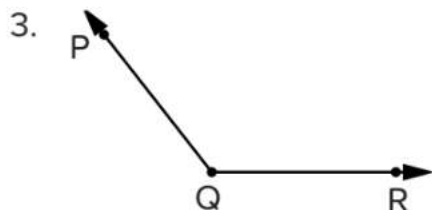
d. 72°





Homework

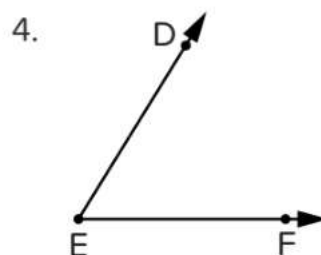
Write three different names for each angle.



Name 1 _____

Name 2 _____

Name 3 _____



Name 1 _____

Name 2 _____

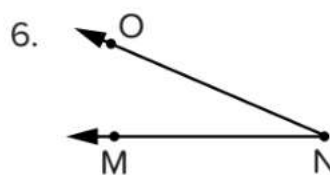
Name 3 _____



Name 1 _____

Name 2 _____

Name 3 _____



Name 1 _____

Name 2 _____

Name 3 _____

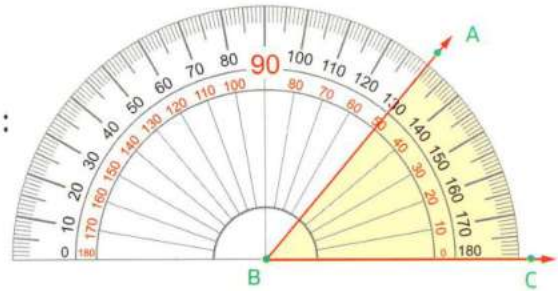




Complete:

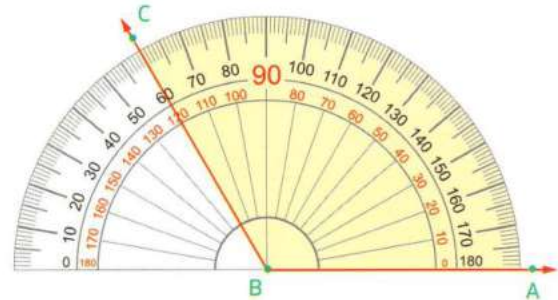
1. Use the opposite angle to answer the questions :

- Its name is $\angle$ _____
- Its type is : _____
- Its measure = _____^o



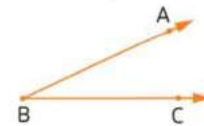
2. In the opposite angle :

- Its measure is _____^o
- And type is _____ angle.

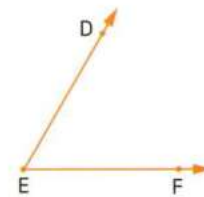


3. In the opposite figure :

- Name of the angle : _____
- Angle type : _____

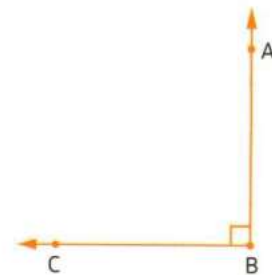


- Name of angle : $\angle$ _____
- Type : _____
- Measure : _____ degrees.



5. In the opposite figure :

- The name of the angle is _____
- The type of the angle is _____
- The measure of the angle = _____^o





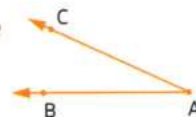
Choose the correct answer:

1. A protractor is an instrument used for measuring _____

A. sides B. angles
C. weight D. capacity

2. The name of the opposite angle is _____

A. $\angle ACB$ B. $\angle ABC$
C. $\angle BAC$ D. $\angle CBA$

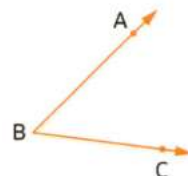


3. The vertex of $\angle ABC$ is _____

A. A B. B
C. C D. otherwise

4. Name the sides of the angle ABC ?

A. $\overrightarrow{AB}, \overrightarrow{BC}$ B. $\overrightarrow{BA}, \overrightarrow{CB}$
C. $\overrightarrow{AC}, \overrightarrow{AB}$ D. $\overrightarrow{BC}, \overrightarrow{BA}$



5. One of sides of the angle RHS is _____

A. $\overrightarrow{HR}$ B. $\overrightarrow{RS}$
C. $\overrightarrow{SH}$ D. $\overrightarrow{RH}$

6. What is the possible measure of the opposite angle ?

A. 10° B. 85°
C. 90° D. 145°

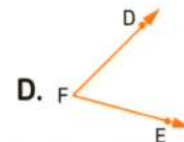
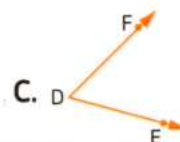
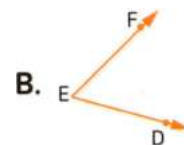
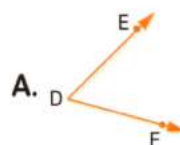


7. The measure of the opposite angle is _____

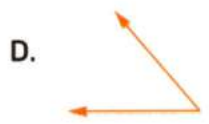
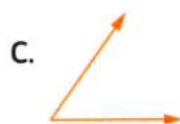
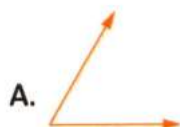
A. 100°
B. 120°
C. 135°
D. 150°



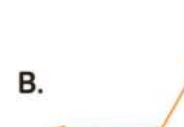
8. Which angle is named as angle DEF ?



9. Which angle is measured 50° ?



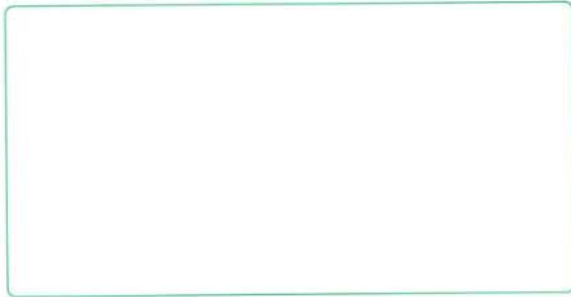
10. Which angle is measured 125° ?



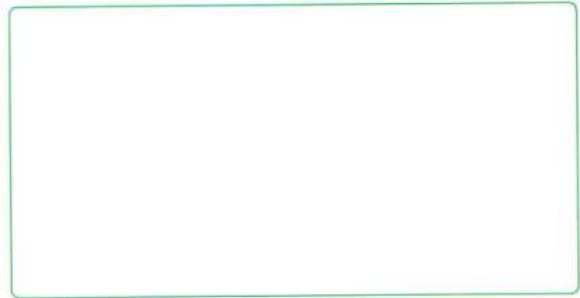
**Lesson (6)****Drawing Angles Using the Protractor**

Use the protractor to draw each of the following angles :

a. 45°



b. 112°



Complete drawing the following angles using the protractor.

a. 20°



b. 105°



c. 55°



d. 135°



e. 85°



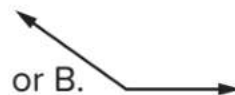
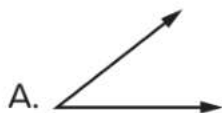
f. 170°



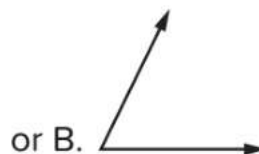


Which Angle Is It? For each angle measurement given, circle the picture of the angle that you think matches that measurement.

1. 45°



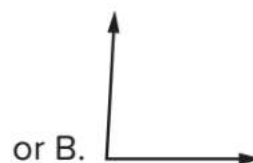
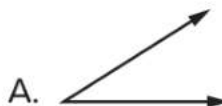
2. 60°



3. 125°



4. 85°



5. 150°



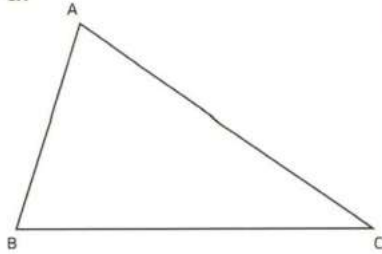


Lesson (7)

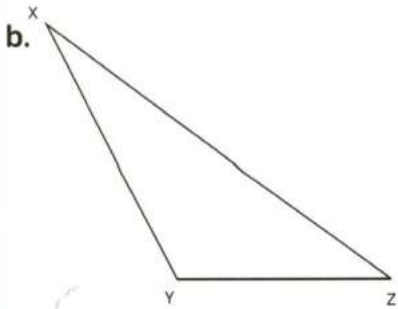
Classifying Triangles Using Geometric Tools

Use a ruler to measure the side lengths of each of the following triangles, then determine the type of each triangle according to its sides.

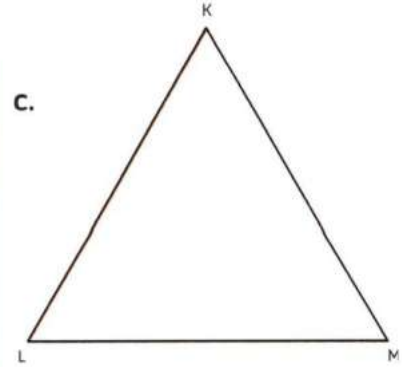
a.



b.



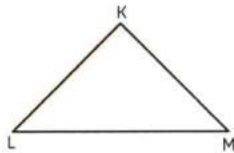
c.



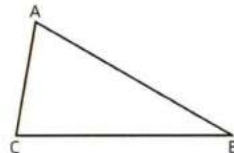


Use a protractor to measure the angles of each of the following triangles, then determine the type of triangle according to its angles.

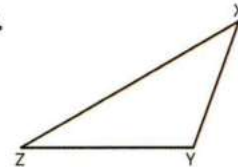
a.



b.



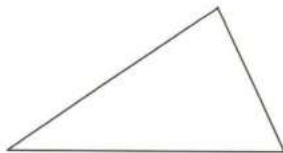
c.





By using your geometric instrument, determine the type of the triangle according to its sides and angles.

a.



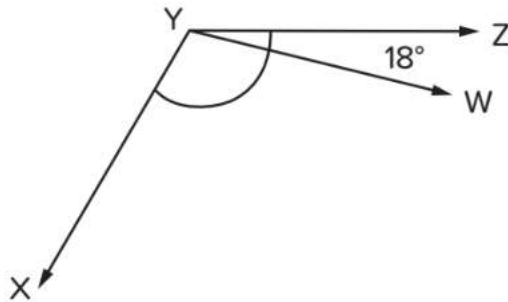
b.



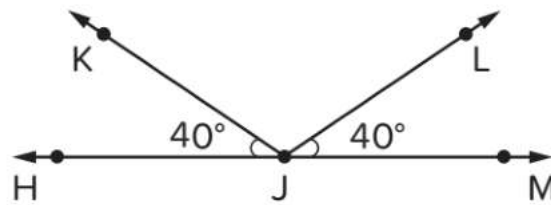


Homework

Angle XYZ measures 117° . What is the measure of Angle XYW?



The figure shows angle HJM. The measure of angle HJM is 180° . What is the measure, in degrees, of angle KJL?



Use your protractor to draw each angle.

a. 50°

b. 25°

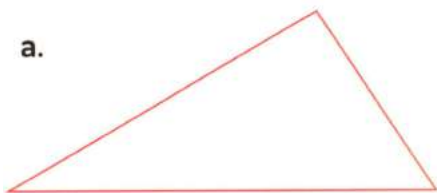
c. 95°

d. 140°

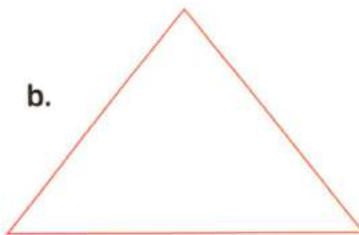


Use a ruler to measure the side lengths of each of the following triangles, then determine the type of each triangle according to its sides.

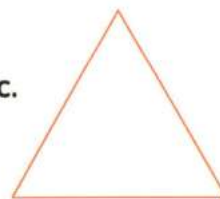
a.



b.

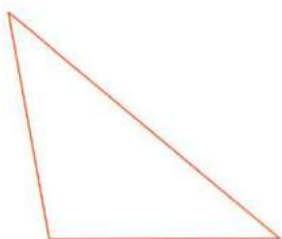


c.

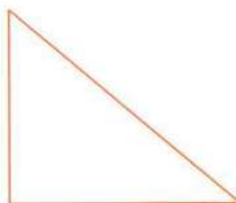


Use a protractor to measure the angles of each of the following triangles, then determine the type of each triangle according to its angles.

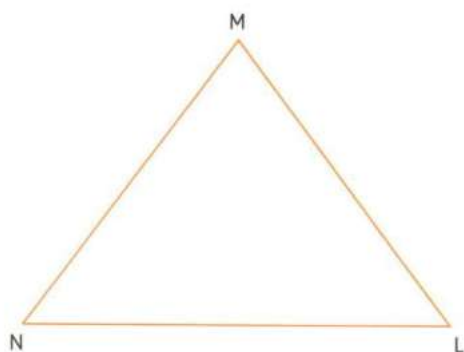
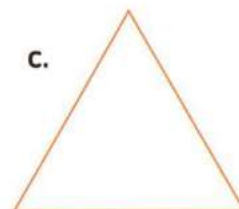
a.



b.

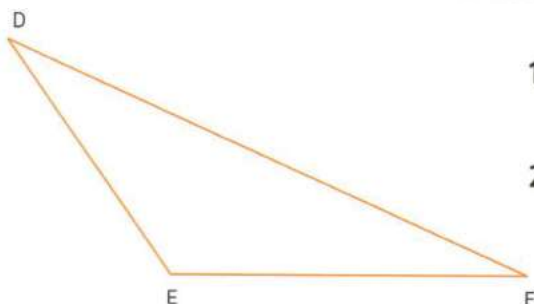


c.



1. Type of $\triangle MLN$ according to its sides _____

2. Type of $\triangle MLN$ according to its angles _____



1. Type of $\triangle DEF$ according to its sides _____

2. Type of $\triangle DEF$ according to its angles _____





Unit (13) Assessment

[1] Choose the correct answer:

1. _____ angle measures 180°

- | | |
|--------------|---------------|
| A. An acute | B. A right |
| C. An obtuse | D. A straight |

2. The best measure estimation of the opposite angle is _____

- | | |
|----------------|----------------|
| A. 40° | B. 90° |
| C. 130° | D. 170° |

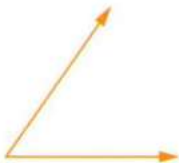


3. The angle of measure 180° represents _____

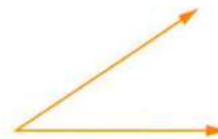
- | | |
|--------------------------------------|--------------------------------------|
| A. $\frac{1}{4}$ of a full rotation. | B. $\frac{1}{2}$ of a full rotation. |
| C. $\frac{1}{3}$ of a full rotation. | D. $\frac{3}{4}$ of a full rotation. |

4. Which angle is measured 125° ?

A.



B.



C.

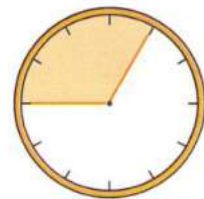


D.



5. The fraction which represents the colored part equals _____

- | | |
|------------------|------------------|
| A. $\frac{1}{3}$ | B. $\frac{2}{3}$ |
| C. $\frac{1}{4}$ | D. $\frac{5}{6}$ |



6. _____ angle measures between 0° and 90° .

- | | |
|--------------|---------------|
| A. An acute | B. A right |
| C. An obtuse | D. A straight |

7. The measure of the straight angle is _____ $^\circ$

- | | | | |
|-------|--------|--------|--------|
| A. 90 | B. 100 | C. 150 | D. 180 |
|-------|--------|--------|--------|



[2] Complete:

1. The two sides of the opposite angle are _____ and _____

2. An obtuse angle measures between _____ and _____

3. The fraction $\frac{1}{4}$ represents in the circle an angle of measure = _____°

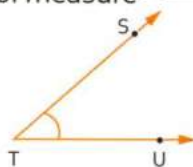
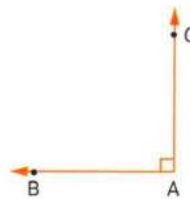
4. The opposite angle named as _____, _____ and _____

5. The measure of the opposite angle = _____

6. The angle of the shaded part of the model = _____

7. A right angle measured _____°.

8. There are _____ degrees in a circle.



[3] Choose the correct answer:

1. The measure of the colored angle of the opposite model is _____°

- A. 90 B. 120 C. 150 D. 180

2. The opposite angle is named as angle _____

- A. ABC B. BCA
C. CAB D. CBA

3. The measure of the acute angle is less than 90° and greater than _____°

- A. zero B. 90 C. 180 D. 360

4. The measure of the opposite angle is _____°

- A. 75 B. 105
C. 55 D. 95

5. _____ angle is $\frac{1}{4}$ of the circle.

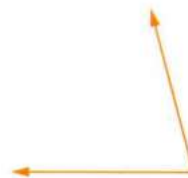
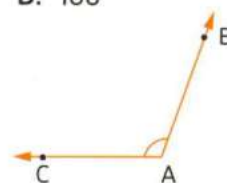
- A. An acute B. An obtuse C. A right D. A straight

6. The related fraction to the angle of measure 120° is _____

- A. $\frac{1}{6}$ B. $\frac{1}{4}$ C. $\frac{1}{3}$ D. $\frac{1}{2}$

7. The straight angle is the same as _____ right angles.

- A. 1 B. 2 C. 3 D. 4





[4] Answer the following:

1. Draw $\angle ABC$ with measure of 120° and classify it by its type.
2. Measure each of the following angles, then classify each angle by its type.

a.



b.

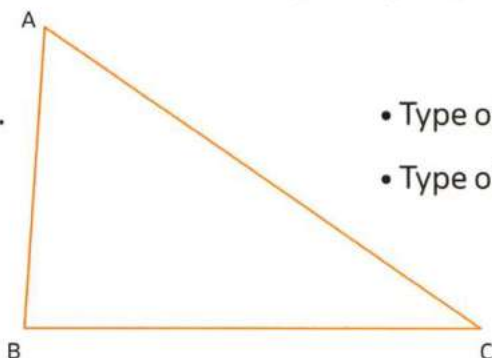


c.



3. Consider the following triangles [using your geometric instrument].

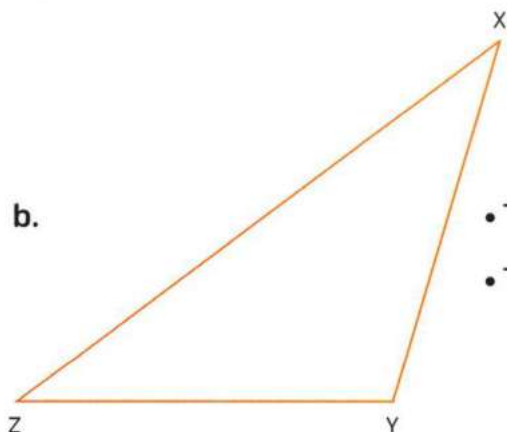
a.



• Type of $\triangle ABC$ with respect to its sides _____

• Type of $\triangle ABC$ with respect to its angles _____

b.

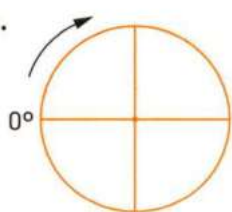


• Type of $\triangle XYZ$ with respect to its sides _____

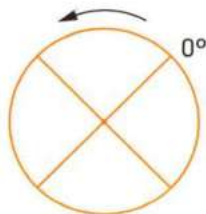
• Type of $\triangle XYZ$ with respect to its angles _____

4. Move from 0° in the given direction. Then label 90° , 180° , 270° and 360° on each circle.

a.



b.



c.



BEST WISHES